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DEBT AND (NOT MUCH) DELEVERAGING

FEBRUARY 2015

HIGHLIGHTS

Household debt
A hidden time bomb in some countries?

Shadow banking
Risky, opaque instruments are out, but non-bank credit is still needed

Debt in China
Debt is soaring, due to real estate and shadow banking

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DEBT AND (NOT MUCH) DELEVERAGING

FEBRUARY 2015

Richard Dobbs | London
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PREFACE

After the global financial crisis hit in 2008, the McKinsey Global Institute began an intensive research effort to understand the magnitude and implications of the global credit bubble that sparked it. In our first report, released in January 2010, we examined growth in debt in the ten largest economies the world, and we identified 45 historic episodes of deleveraging going back to 1930. We found that deleveraging episodes typically last five to seven years and are accompanied by low or negative economic growth—a finding that has now been made painfully clear. In January 2012, we followed up on our original research and traced the progress in the deleveraging process in three countries that were hit hard by the crisis: the United States, the United Kingdom, and Spain.

In this, our third major report on debt and deleveraging, we expand our analysis to 47 countries around the world. We find that deleveraging since 2008 remains limited to a handful of sectors in some countries and that, overall, debt relative to GDP is now higher in most nations than it was before the crisis. Not only has government debt continued to rise, but so have household and corporate debt in many countries. China's total debt, as a percentage of GDP, now exceeds that of the United States. Higher levels of debt pose questions about financial stability and whether some countries face the risk of a crisis. One bright spot is that the financial sector has deleveraged and that many of the riskiest forms of shadow banking are in retreat. But overall this research paints a picture of a world where debt has reached new levels despite the pain of the financial crisis. This reality calls for fresh approaches to reduce the risk of debt crises, repair the damage that debt crises incur, and build stable financial systems that can finance companies and fund economic growth without the devastating boom-bust cycles we have seen in the past.

This research was led by Richard Dobbs, an MGI director in London; Susan Lund, an MGI partner in Washington, DC; and Jonathan Woetzel, an MGI director in Shanghai. The research team was led by Mina Mutafchieva, a consultant in McKinsey's Brussels office, and included Samudra Dasgupta, Florian Fuchs, Ritesh Jain, and Wendy Wong. Jeongmin Seong, an MGI senior fellow based in Shanghai, was also part of the research team. Two McKinsey alumni, Aaron Foo and Jan Grabowiecki, also contributed to the early stages of the research.

We are deeply indebted to the external advisers who provided insights and challenges to our work: Richard Cooper, Maurits C. Boas Professor of International Economics at Harvard University; Howard Davies, chairman of the Phoenix Group, former chairman of the UK Financial Services Authority, and former Director of the London School of Economics and Political Science; Andrew Sheng, a distinguished fellow at the Fung Global Institute, and chief adviser to the China Banking Regulatory Commission; and Adair Turner, a senior fellow at the Institute for New Economic Thinking and former chairman of the Financial Services Authority. We also thank Òscar Jordà, professor of economics at the University of California, Davis, for his generous contributions. Jonathan Anderson, founder of the Emerging Advisors Group, also helped. We thank Joelle Scally, financial/economic analyst for the Federal Reserve Bank of New York, for her assistance.

We are grateful to the many McKinsey colleagues who shared valuable expertise, including Daniele Chiarella, a McKinsey director in Frankfurt; Toos Daruvala, a director in New York; and Philipp Harle, a director in London. Other McKinsey colleagues who contributed to this research include Stephan Binder, Philip Christiani, David Cogman, Xiuyan Fang, Paul Jenkins, Raj Kamal, Johannes Luneborg, Joseph Luc Ngai, John Qu, Badrinath Ramanathan, Christoffer Rasmussen, Christian Roland, Joydeep Sengupta, Ole Jorgen Vetvik, and Haimeng Zhang. We thank the many McKinsey knowledge experts who assisted in our research: Sonam Arora, Asako Iijima, Hyunjoo Lee, Xiujun Lillian Li, Hongying Liao, John Loveday, Juan Tres, Hui Xie, and Minnie Zhou.

This report was produced with the assistance of MGI's staff. Geoffrey Lewis provided editorial support, and Julie Philpot managed production. We also thank graphic designers Marisa Carder and Margo Shimasaki; Tim Beacom, knowledge operations specialist; Rebeca Robboy, Matt Cooke, and Vanessa Gotthainer, external communications; and Deadra Henderson, manager of personnel and administration.

This report contributes to MGI's mission to help business and policy leaders understand the forces transforming the global economy, identify strategic locations, and prepare for the next wave of growth. As with all MGI research, this work is independent and has not been commissioned or sponsored in any way by any business, government, or other institution, although it has benefited from the input and collaborations that we have mentioned. We welcome your emailed comments on the research at MGI@mckinsey.com.

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IN BRIEF

DEBT AND (NOT MUCH) DELEVERAGING

After the 2008 financial crisis and the longest and deepest global recession since World War II, it was widely expected that the world's economies would deleverage. It has not happened. Instead, debt continues to grow in nearly all countries, in both absolute terms and relative to GDP. This creates fresh risks in some countries and limits growth prospects in many.

- **Debt continues to grow.** Since 2007, global debt has grown by $57 trillion, raising the ratio of debt to GDP by 17 percentage points.* Developing economies account for roughly half of the growth, and in many cases this reflects healthy financial deepening. In advanced economies, government debt has soared and private-sector deleveraging has been limited.
- **Reducing government debt will require a wider range of solutions.** Government debt has grown by $25 trillion since 2007, and will continue to rise in many countries, given current economic fundamentals. For the most highly indebted countries, implausibly large increases in real GDP growth or extremely deep reductions in fiscal deficits would be required to start deleveraging. A broader range of solutions for reducing government debt will need to be considered, including larger asset sales, one-time taxes, and more efficient debt restructuring programs.
- **Shadow banking has retreated, but non-bank credit remains important.** One piece of good news: the financial sector has deleveraged, and the most damaging elements of shadow banking in the crisis are declining. However, other forms of non-bank credit, such as corporate bonds and lending by non-bank intermediaries, remain important. For corporations, non-bank sources account for nearly all new credit growth since 2008. These intermediaries can help fill the gap as bank lending remains constrained in the new regulatory environment.
- **Households borrow more.** In the four "core" crisis countries that were hit hard—the United States, the United Kingdom, Spain, and Ireland—households have deleveraged. But in many other countries, household debt-to-income ratios have continued to grow, and in some cases far exceed the peak levels in the crisis countries. To safely manage high levels of household debt, more flexible mortgage contracts, clearer personal bankruptcy rules, and stricter lending standards are needed.
- **China's debt is rising rapidly.** Fueled by real estate and shadow banking, China's total debt has quadrupled, rising from $7 trillion in 2007 to $28 trillion by mid-2014. At 282 percent of GDP, China's debt as a share of GDP, while manageable, is larger than that of the United States or Germany.* Several factors are worrisome: half of loans are linked directly or indirectly to China's real estate market, unregulated shadow banking accounts for nearly half of new lending, and the debt of many local governments is likely unsustainable.

It is clear that deleveraging is rare and that solutions are in short supply. Given the scale of debt in the most highly indebted countries, the current solutions for sparking growth or cutting fiscal deficits alone will not be sufficient. New approaches are needed to start deleveraging and to manage and monitor debt. This includes innovations in mortgages and other debt contracts to better share risk; clearer rules for restructuring debt; eliminating tax incentives for debt; and using macroprudential measures to dampen credit booms. Debt remains an essential tool for funding economic growth. But how debt is created, used, monitored, and when needed discharged, must be improved.

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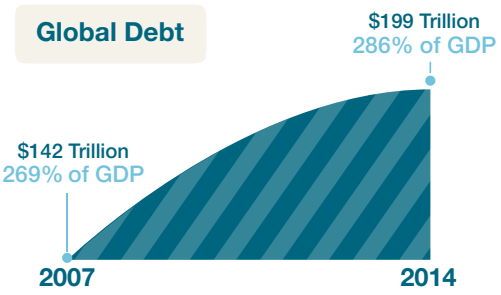
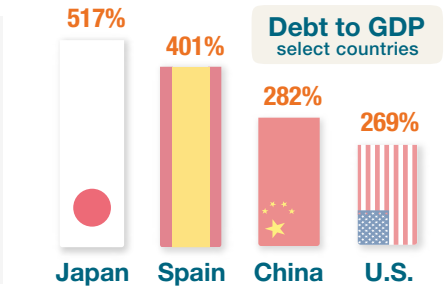
* Includes debt of the financial sector.

Seeking stability in an indebted world

What happened to deleveraging?



$57 Trillion
since 2007



Across sectors and geographies there are troubling signs:

CHINA'S debt is soaring

Quadrupled since 2007

~50% of loans linked to real estate

Shadow banking growing at 36% p.a.

HOUSEHOLDS borrow more

80% of countries have higher debt

74% of household debt is mortgages

7 countries at risk

GOVERNMENT debt is up $25 trillion since 2007

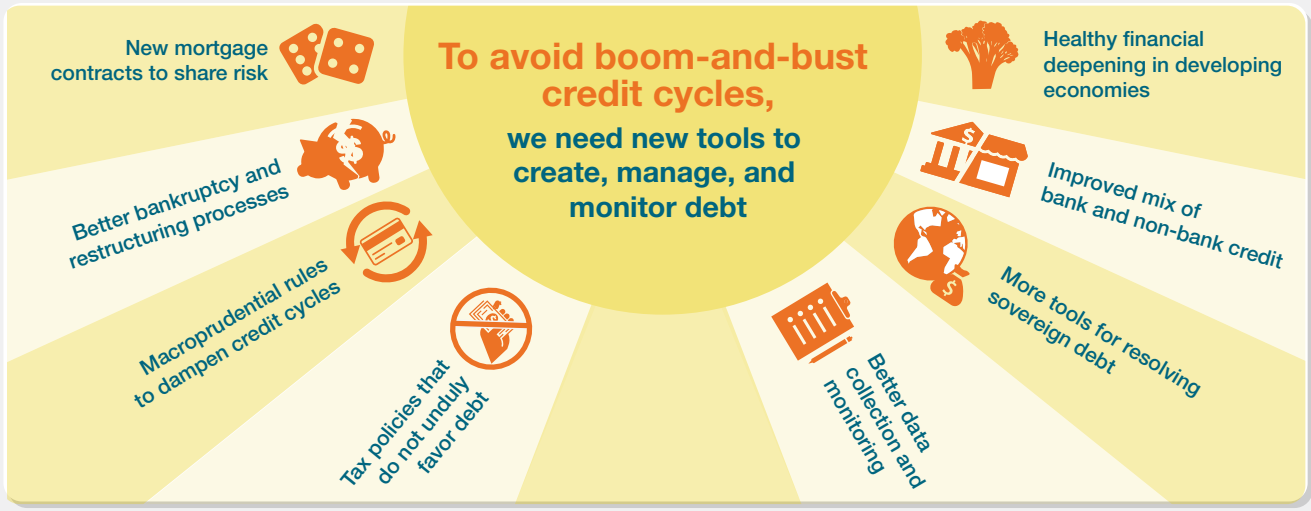
75% of increase in advanced economies

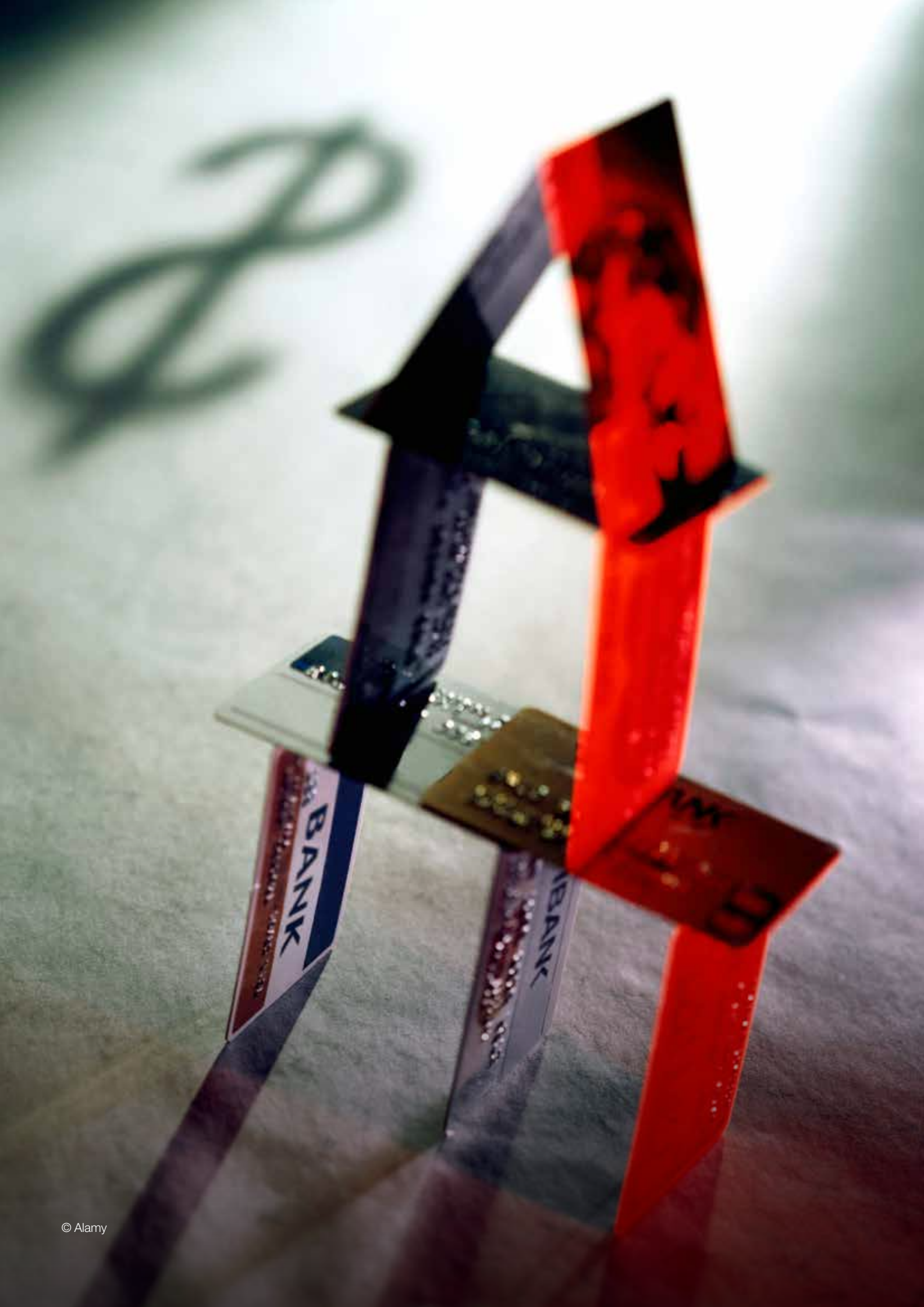
Exceeds 100% of GDP in 10 countries

Projected to keep growing in Europe and Japan

Good news: the financial sector has deleveraged and become safer

Risky forms of shadow banking are fading, while non-bank lending is rising in importance


To avoid boom-and-bust credit cycles,
we need new tools to create, manage, and monitor debt
New mortgage contracts to share risk
Better bankruptcy and restructuring processes
Macroprudential rules to dampen credit cycles
Tax policies that do not unduly favor debt
Healthy financial deepening in developing economies
Improved mix of bank and non-bank credit
More tools for resolving sovereign debt
Better data collection and monitoring



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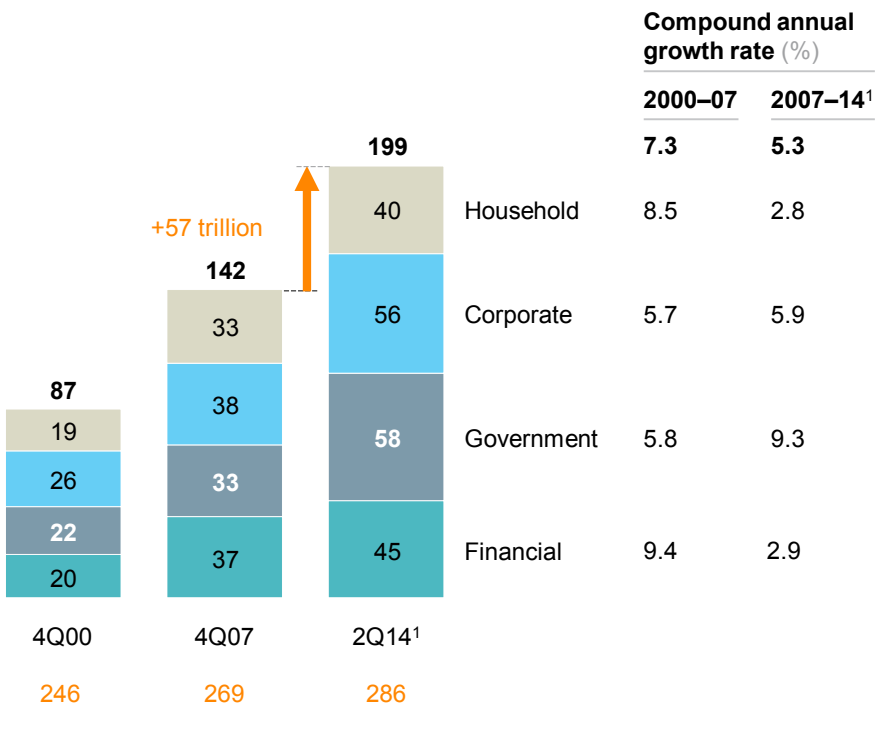
EXECUTIVE SUMMARY

Seven years after the global financial crisis, global debt and leverage have continued to grow. From 2007 through the second quarter of 2014, global debt grew by $57 trillion, raising the ratio of global debt to GDP by 17 percentage points (Exhibit E1). This is not as much as the 23-point increase in the seven years before the crisis, but it is enough to raise fresh concerns. Governments in advanced economies have borrowed heavily to fund bailouts in the crisis and offset falling demand in the recession, while corporate and household debt in a range of countries continues to grow rapidly.

Exhibit E1

Global debt has increased by $57 trillion since 2007, outpacing world GDP growth

Global stock of debt outstanding by type[1]
$ trillion, constant 2013 exchange rates



1 2Q14 data for advanced economies and China; 4Q13 data for other developing economies.
NOTE: Numbers may not sum due to rounding.

SOURCE: Haver Analytics; national sources; *World economic outlook*, IMF; BIS; McKinsey Global Institute analysis

There are few indicators that the current trajectory of rising leverage will change, especially in light of diminishing expectations for economic growth. This calls into question basic assumptions about debt and deleveraging and the adequacy of the tools available to manage debt and avoid future crises. We find it unlikely that economies with total non-financial debt that is equivalent to three to four times GDP will grow their way out of excessive debt. And the adjustments to government budgets required to start deleveraging of the most indebted governments are on a scale that makes success politically challenging.

This situation demands a broader set of approaches. Debt will remain an essential tool for the global economy, funding needed investments in infrastructure, business expansion, and urbanization. But high debt levels, whether in the public or private sector, have historically placed a drag on growth and raised the risk of financial crises that spark deep economic recessions.[1] A broader range of tools to avoid excessive borrowing and efficiently restructure debt when needed should be considered.

High debt levels, whether in the public or private sector, have historically placed a drag on growth and raised the risk of financial crises that spark deep economic recessions.

This research builds on our previous work on global debt and deleveraging, which examined debt in the private and public sectors across countries.[2] In this report, we examine the evolution of debt and prospects for deleveraging in 22 advanced economies and 25 developing economies. Our research focuses on debt of the "real economy"—of households, non-financial corporations, and governments—and treats financial-sector debt separately. One bit of good news in our research is the reduced leverage and increased safety of the financial sector in advanced economies.

In our analysis we examine several important developments in global debt since the crisis: the continuing rise of leverage around the world; growing government debt and how it might be managed; continued rapid growth in household debt in some countries that raises the risk of future crises; the potential risks of China's rising debt, which accounts for about a third of the increase in global debt since 2007; and the decline of the riskiest forms of shadow banking and continued growth of other forms of non-bank lending. We conclude that, absent additional steps and new approaches, business leaders should expect that debt will be a drag on GDP growth and continue to create volatility and fragility in financial markets. Policy makers will need to consider a full range of responses to reduce debt as well as innovations to make debt less risky and make the impact of future crises less catastrophic.

Since the crisis, most countries have added debt, rather than deleveraging

A large body of academic research shows that high debt is associated with slower GDP growth and higher risk of financial crises.[3] Given the magnitude of the 2008 financial crisis, it is a surprise, then, that no major economies and only five developing economies have reduced the ratio of debt to GDP in the "real economy" (households, non-financial corporations, and governments, and excluding financial-sector debt). In contrast, 14 countries have increased their total debt-to-GDP ratios by more than 50 percentage points (Exhibit E2).[4] Exhibit E3 shows the change in the ratio of debt to GDP in countries by sector since 2007 and ranks countries by the size of their total debt-to-GDP ratio.

1 There has been much debate about what constitutes excessive leverage. We find that the definition will vary by country and that specific target ratios cannot be applied universally. Our data provide a basis for comparison and further analysis.

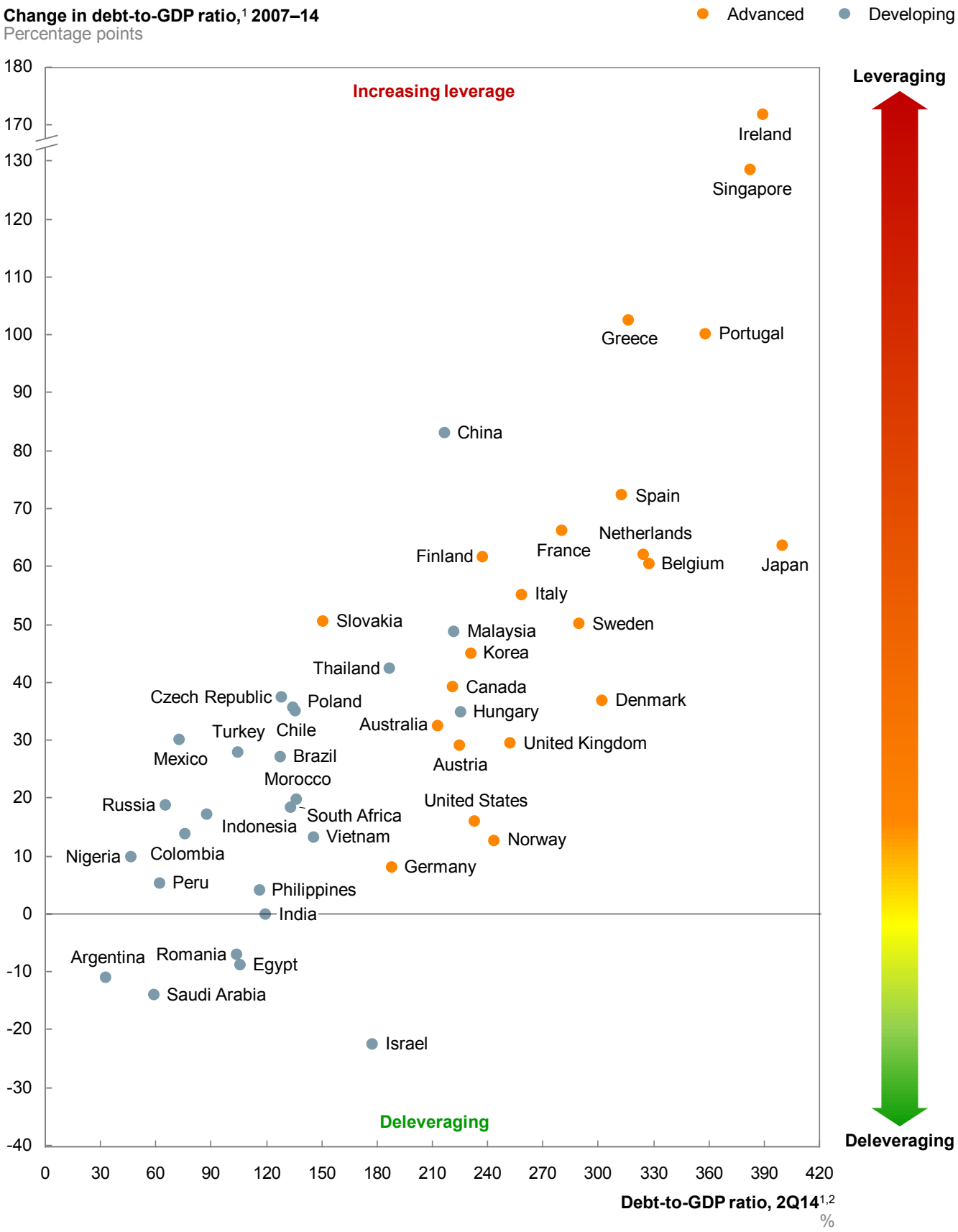
2 *Debt and deleveraging: Uneven progress on the path to growth*, McKinsey Global Institute, January 2012; *Debt and deleveraging: The global credit bubble and its economic consequences*, McKinsey Global Institute, January 2010.

3 Carmen M. Reinhart, Vincent R. Reinhart, and Kenneth S. Rogoff, "Public debt overhangs: Advanced economy episodes since 1800," *Journal of Economic Perspectives*, volume 26, number 3, Summer 2012; Stephen G. Cecchetti, M. S. Mohanty and Fabrizio Zampolli, *The real effects of debt*, Bank for International Settlements (BIS) working paper number 352, September 2011.

4 This pattern of rising overall leverage has been observed in academic papers, notably by Luigi Buttiglione et al., "Deleveraging? What deleveraging?" *Geneva Reports on the World Economy*, issue 16, September 2014.

Exhibit E2

The ratio of debt to GDP has increased in all advanced economies since 2007



1 Debt owed by households, non-financial corporates, and governments.
2 2Q14 data for advanced economies and China; 4Q13 data for other developing economies.

SOURCE: Haver Analytics; national sources; McKinsey Global Institute analysis

Exhibit E3

Change in debt-to-GDP ratio since 2007 by country

Ranked by real economy debt-to-GDP ratio, 2Q14[1]

Advanced economy
Developing economy
Leveraging
Deleveraging

Rank	Country	Debt-to-GDP ratio[1] %	Real economy debt change, 2007–14 Percentage points				Financial sector debt change
			Total	Government	Corporate	Household	
1	Japan	400	64	63	2	-1	6
2	Ireland	390	172	93	90	-11	-25
3	Singapore	382	129	22	92	15	23
4	Portugal	358	100	83	19	-2	38
5	Belgium	327	61	34	15	11	4
6	Netherlands	325	62	38	17	7	38
7	Greece	317	103	70	13	20	1
8	Spain	313	72	92	-14	-6	-2
9	Denmark	302	37	22	7	8	37
10	Sweden	290	50	1	31	18	37
11	France	280	66	38	19	10	15
12	Italy	259	55	47	3	5	14
13	United Kingdom	252	30	50	-12	-8	2
14	Norway	244	13	-16	16	13	16
15	Finland	238	62	29	17	15	24
16	United States	233	16	35	-2	-18	-24
17	South Korea	231	45	15	19	12	2
18	Hungary	225	35	15	21	-1	10
19	Austria	225	29	23	6	0	-21
20	Malaysia	222	49	17	16	16	6
21	Canada	221	39	18	6	15	-6
22	China	217	83	13	52	18	41
23	Australia	213	33	23	-1	10	-8
24	Germany	188	8	17	-2	-6	-16
25	Thailand	187	43	11	6	26	21
26	Israel	178	-22	-4	-21	3	-2
27	Slovakia	151	51	28	8	14	-5
28	Vietnam	146	13	10	-1	5	2
29	Morocco	136	20	8	7	5	3
30	Chile	136	35	6	20	9	9
31	Poland	134	36	14	9	13	9
32	South Africa	133	19	18	2	-2	-3
33	Czech Republic	128	37	19	9	9	4
34	Brazil	128	27	3	15	9	13
35	India	120	0	-5	6	-1	5
36	Philippines	116	4	-3	9	-2	-5
37	Egypt	106	-9	9	-18	0	-8
38	Turkey	104	28	-4	22	10	11
39	Romania	104	-7	26	-35	1	-4
40	Indonesia	88	17	-5	17	6	-2
41	Colombia	76	14	1	8	5	3
42	Mexico	73	30	19	10	1	-1
43	Russia	65	19	3	9	7	-4
44	Peru	62	5	-10	11	5	2
45	Saudi Arabia	59	-14	-15	2	-1	-8
46	Nigeria	46	10	7	1	2	-1
47	Argentina	33	-11	-14	1	2	-5

1 Includes debt of households, non-financial corporations, and government; 2Q14 data for advanced economies and China; 2013 data for other developing economies.

NOTE: Numbers may not sum due to rounding.

SOURCE: *World economic outlook*, IMF; BIS; Haver Analytics; national central banks; McKinsey Global Institute analysis

Some of the growth in global debt is benign and even desirable. Developing economies have accounted for 47 percent of all the growth in global debt since 2007—and three-quarters of new debt in the household and corporate sectors. To some extent, this reflects healthy financial system deepening, as more households and companies gain access to financial services. Moreover, debt in developing countries remains relatively modest, averaging 121 percent of GDP, compared with 280 percent for advanced economies. There are exceptions, notably China, Malaysia, and Thailand, whose debt levels are now at the level of some advanced economies.

More concerning is the continuing rise of debt levels in advanced economies. Despite the tightening of lending standards, household debt relative to income has declined significantly in only five advanced economies—the United States, Ireland, the United Kingdom, Spain, and Germany.[5] The United States and Ireland have achieved the most household deleveraging, using very different mechanisms (default in the United States, and loan modification programs in Ireland). Meanwhile, a number of countries in northern Europe, as well as Canada and Australia, now have larger household debt ratios than existed in the United States or the United Kingdom at the peak of the credit bubble. Corporations were not highly leveraged at the start of the 2008 crisis and their debt has risen only slightly since then. For small businesses, particularly in parts of Europe, new lending has dried up.

47%
Contribution of developing economies to global debt growth

Government debt: A wider range of solutions is needed

Government debt in advanced economies increased by $19 trillion between 2007 and the second quarter of 2014 and by $6 trillion in developing countries. In the depths of the recession, the rise in government spending was a welcome counterbalance to the sharp decline in private-sector demand. Indeed, at the first G20 meeting in Washington, DC, policymakers urged governments to use fiscal stimulus to combat the recession.

But government debt has now reached high levels in a range of countries and is projected to continue to grow. Given current primary fiscal balances, interest rates, inflation, and consensus real GDP growth projections, we find that government debt-to-GDP ratios will continue to rise over the next five years in Japan (where government debt is already 234 percent of GDP), the United States, and most European countries, with the exceptions of Germany, Ireland, and Greece.

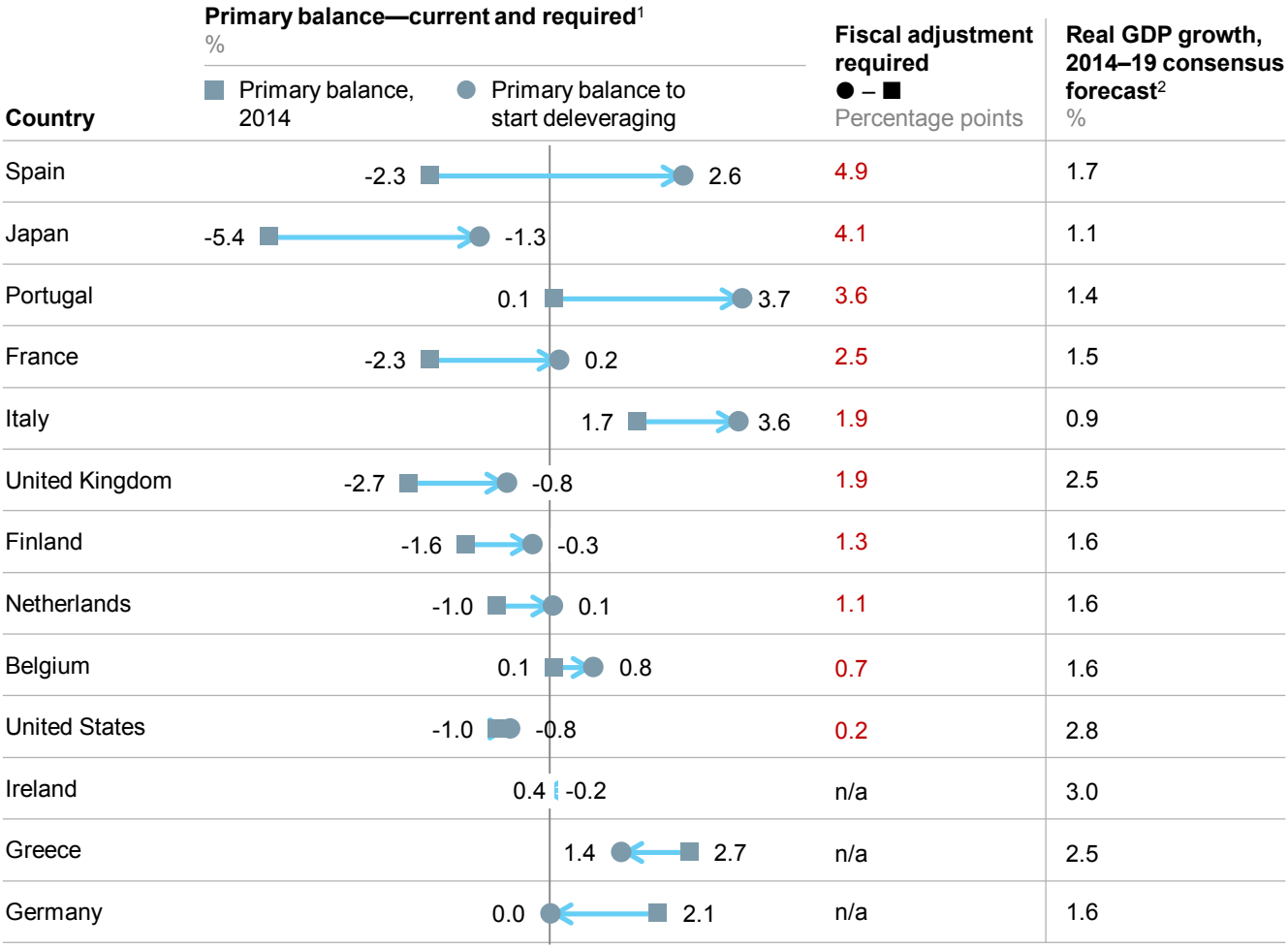
It is unclear how the most highly indebted of these advanced economies can reduce government debt. We calculate that the fiscal adjustment (or improvement in government budget balances) required to start government deleveraging is close to 2 percent of GDP or more in six countries: Spain, Japan, Portugal, France, Italy, and the United Kingdom (Exhibit E4). Attaining and then sustaining such dramatic changes in fiscal balances would be challenging. Furthermore, efforts to reduce fiscal deficits could be self-defeating—inhibiting the growth that is needed to reduce leverage.

Nor are these economies likely to grow their way out of high government debt—which was essential to some previous successful deleveraging episodes, such as Sweden's and Finland's in the 1990s. In these countries, too, government debt rose in the recessions that followed their crises. But their private sectors deleveraged rapidly, and both nations benefited from an export boom, fueled in large part by a 30 percent currency depreciation and strong global demand. Today, many of the world's largest economies are trying to deleverage at the same time and in an environment of limited global growth and persistently low inflation. Our analysis shows that real GDP growth would need to be twice the current projected rates or more to start reducing government debt-to-GDP ratios in six countries: Spain, Japan, Portugal, France, Italy, and Finland.

[5] In some countries, such as Japan, Ireland, and Portugal, deleveraging of households has been offset by rising corporate-sector leverage.

Exhibit E4

European economies and Japan require significant fiscal adjustment to start public-sector deleveraging


Primary balance—current and required[1]
%
Primary balance, 2014
Primary balance to start deleveraging
Country
Fiscal adjustment required
● – ■
Percentage points
Real GDP growth, 2014–19 consensus forecast[2]
%
Spain -2.3 2.6 4.9 1.7
Japan -5.4 -1.3 4.1 1.1
Portugal 0.1 3.7 3.6 1.4
France -2.3 0.2 2.5 1.5
Italy 1.7 3.6 1.9 0.9
United Kingdom -2.7 -0.8 1.9 2.5
Finland -1.6 -0.3 1.3 1.6
Netherlands -1.0 0.1 1.1 1.6
Belgium 0.1 0.8 0.7 1.6
United States -1.0 -0.8 0.2 2.8
Ireland 0.4 -0.2 n/a 3.0
Greece 1.4 2.7 n/a 2.5
Germany 0.0 2.1 n/a 1.6

1 Based on consensus GDP forecast, current inflation, 2Q14 government debt-to-GDP level, and estimated 2014 effective interest rate.
2 Average real GDP growth forecast from 2014 to 2019 per IMF, IHS, EIU, Oxford Economics, OECD, and McKinsey Global Growth Model.

SOURCE: McKinsey Country Debt database; IMF; IHS; EIU; Oxford Economics; OECD; McKinsey Global Growth Model; McKinsey Global Institute analysis

A wider range of solutions to enable government deleveraging is therefore needed. The specifics will depend on the circumstances of each country. But these may include, for instance, more widespread public asset sales, higher or one-time taxes on wealth, higher inflation targets, and more efficient programs for debt restructuring.

Household debt continues to grow rapidly, and deleveraging is rare

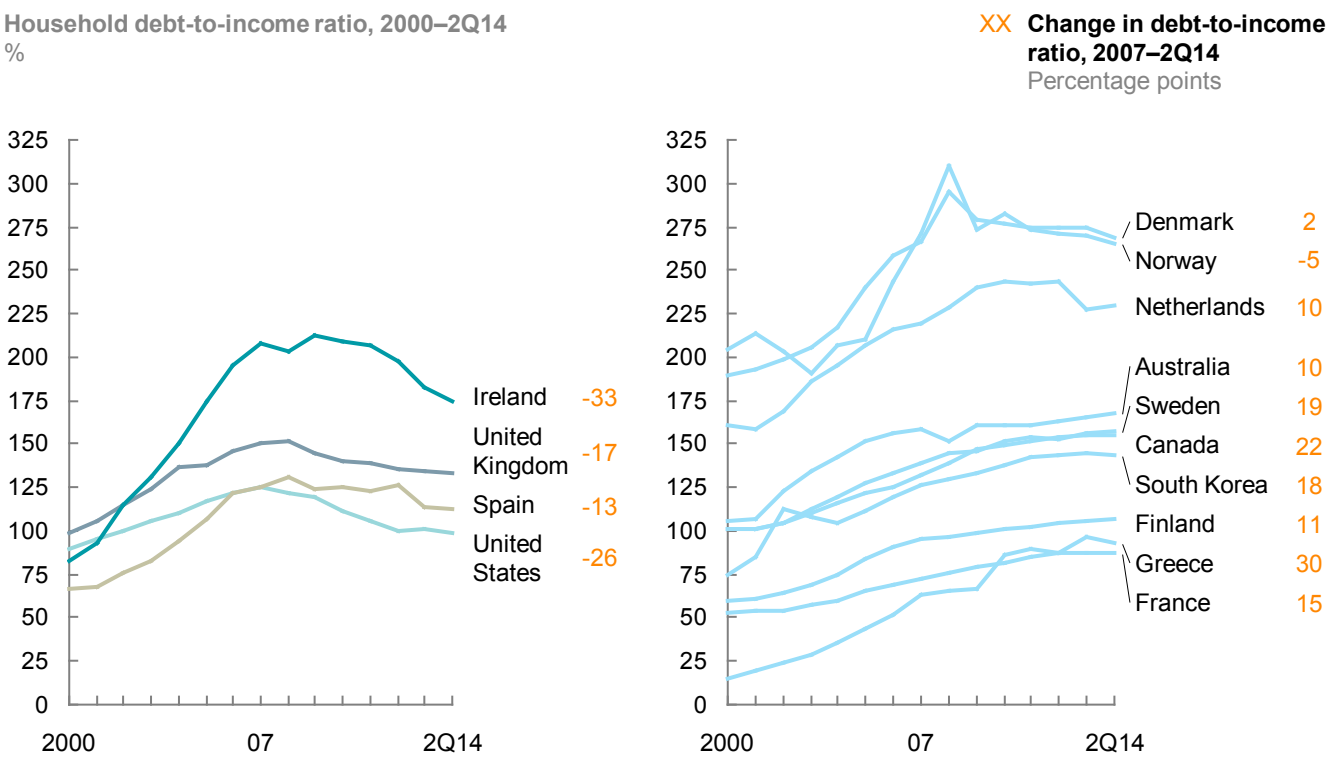
Unsustainable levels of household debt in the United States and a handful of other advanced economies were at the core of the 2008 financial crisis. Between 2000 and 2007, the ratio of household debt relative to income rose by one-third or more in the United States, the United Kingdom, Spain, Ireland, and Portugal. This was accompanied by, and contributed to, rising housing prices. When housing prices started to decline and the financial crisis occurred, the struggle to keep up with this debt led to a sharp contraction in consumption and a deep recession.[6]

6 Atif Mian and Amir Sufi, *House of Debt: How they (and you) caused the Great Recession, and how we can prevent it from happening again*, University of Chicago Press, 2014.

Since then, households in those countries have begun deleveraging, with the most progress in Ireland and the United States (Exhibit E5). In many other countries, however, household debt has continued to rise rapidly. In the Netherlands, Denmark, and Norway, household debt now exceeds 200 percent of income—far above US or UK household debt at the peak. In other advanced economies, such as Canada, South Korea, and Australia, household debt also continues to grow. Household debt has risen rapidly in some developing countries, too—quadrupling in China, for instance—but remains at much lower levels relative to income than in advanced economies (Malaysia and Thailand are exceptions).

Exhibit E5

Households in the hard-hit countries have deleveraged, but household debt has continued to grow in most advanced economies



SOURCE: Haver Analytics; national central banks; McKinsey Global Institute analysis

Why is household deleveraging so rare? Mortgages are the main form of household debt in all advanced economies, and rising housing prices contribute to more borrowing. And, when buyers can obtain larger mortgages, they bid up house prices even more. We find a strong correlation between increases in real estate prices and household debt both across countries and between US states. Housing prices, in turn, reflect land costs, which are influenced by physical limitations, regulatory policies, and urban concentration.[7] We show that urbanization patterns matter: countries in which a large share of the population crowds into a small number of cities have higher real estate prices—and household debt—than countries with more dispersed urban development. Policy makers will therefore need to be particularly vigilant in monitoring debt growth and sustainability in global cities with high real estate prices.

[7] Other factors, including the size of the high-skill, high-income workforce, also contribute to higher land and housing prices in large cities.

The question now is whether high household debt in some countries will spark a crisis. We assess the level and growth of debt-to-income ratios, debt service ratios, and house price changes. Using these metrics, we find that seven economies today have potential vulnerabilities in household debt: the Netherlands, South Korea, Canada, Sweden, Australia, Malaysia, and Thailand. More than ever, effective tools are needed for issuing, monitoring, and managing household debt.

The riskiest forms of shadow banking have retreated, but non-bank credit remains important

$4.3T
Increase in corporate bonds outstanding since 2007

One bright spot in our research is progress in financial-sector deleveraging. In the years prior to the crisis, the global financial system became ever more complex and interconnected. Credit intermediation chains become very long, involving multiple layers of securitization, high levels of leverage, and opaque distribution of risk. This was reflected in growing debt issued by financial institutions to fund their activities. Financial-sector debt grew from $20 trillion in 2000 to $37 trillion in 2007, or from 56 percent of global GDP to 71 percent. Much of this debt was in the so-called shadow banking system, whose vulnerability was starkly exposed by the financial crisis.

It is a welcome sign, then, that financial-sector debt relative to GDP has declined in the United States and a few other crisis countries, and has stabilized in other advanced economies. At the same time, banks have raised capital and reduced leverage. Moreover, the riskiest elements of shadow banking are in decline. For example, the assets of off-balance sheet special-purpose vehicles formed to securitize mortgages and other loans have fallen by $3 trillion in the United States. Repurchase agreements (repos), collateralized debt obligations, and credit default swaps have declined by 19 percent, 43 percent, and 67 percent, respectively, since 2007.

However, if we consider the broader context of non-bank credit, including corporate bonds, simple securitizations, and lending by various non-bank institutions, we see that non-bank credit is an important source of financing for the private sector. Since 2007, corporate bonds and lending by non-bank institutions—including insurers, pension funds, leasing programs, and government programs—has accounted for nearly all net new credit for companies, while corporate bank lending has shrunk (Exhibit E6). The value of corporate bonds outstanding globally has grown by $4.3 trillion since 2007, compared with $1.2 trillion from 2000 to 2007. Most of these forms of non-bank credit have fewer of the risks of the shadow banking seen before the crisis, in terms of leverage, maturity mismatch, and opacity.

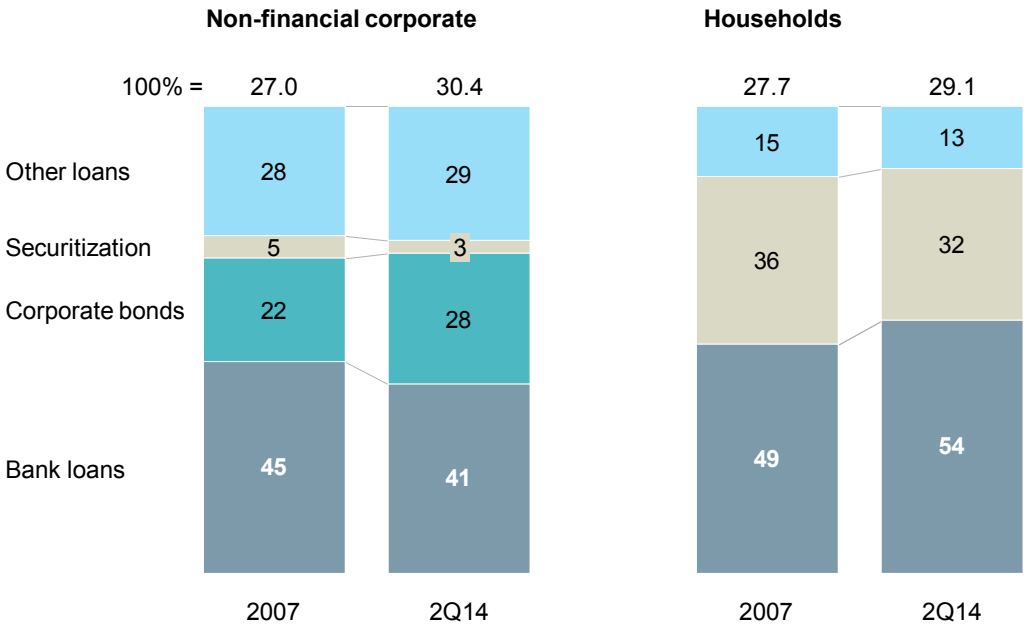
Some specific types of non-bank credit are growing very rapidly, such as credit funds operated by hedge funds and other alternative asset managers. Assets in credit funds for a sample of eight alternative asset managers have more than doubled since 2009 and now exceed $400 billion. Another small, but rapidly growing, source of non-bank debt is peer-to-peer lending. These online lending platforms have originated only about $30 billion in loans so far, but private equity funds, other asset managers, and even banks have begun investing in peer-to-peer platforms, suggesting that these lenders could build greater scale. Currently, the risks associated with these new credit intermediaries appear low, although they should be monitored closely, as that could change.

With bank lending likely to remain constrained in the future due to new regulations, non-bank credit could fill a growing need. If appropriate restrictions on leverage and use of complex, opaque financial instruments are in place, loans from non-bank intermediaries, corporate bonds, and simple forms of securitization can play an important role in funding growth.

Exhibit E6

Since 2007, non-bank credit has grown as a corporate funding source and declined for households

Outstanding debt in advanced economies[1]
%; $ trillion, constant exchange rates 2013



1 Australia, Canada, France, Germany, Japan, Netherlands, South Korea, United Kingdom, United States.
NOTE: Numbers may not sum due to rounding.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; McKinsey Global Institute analysis

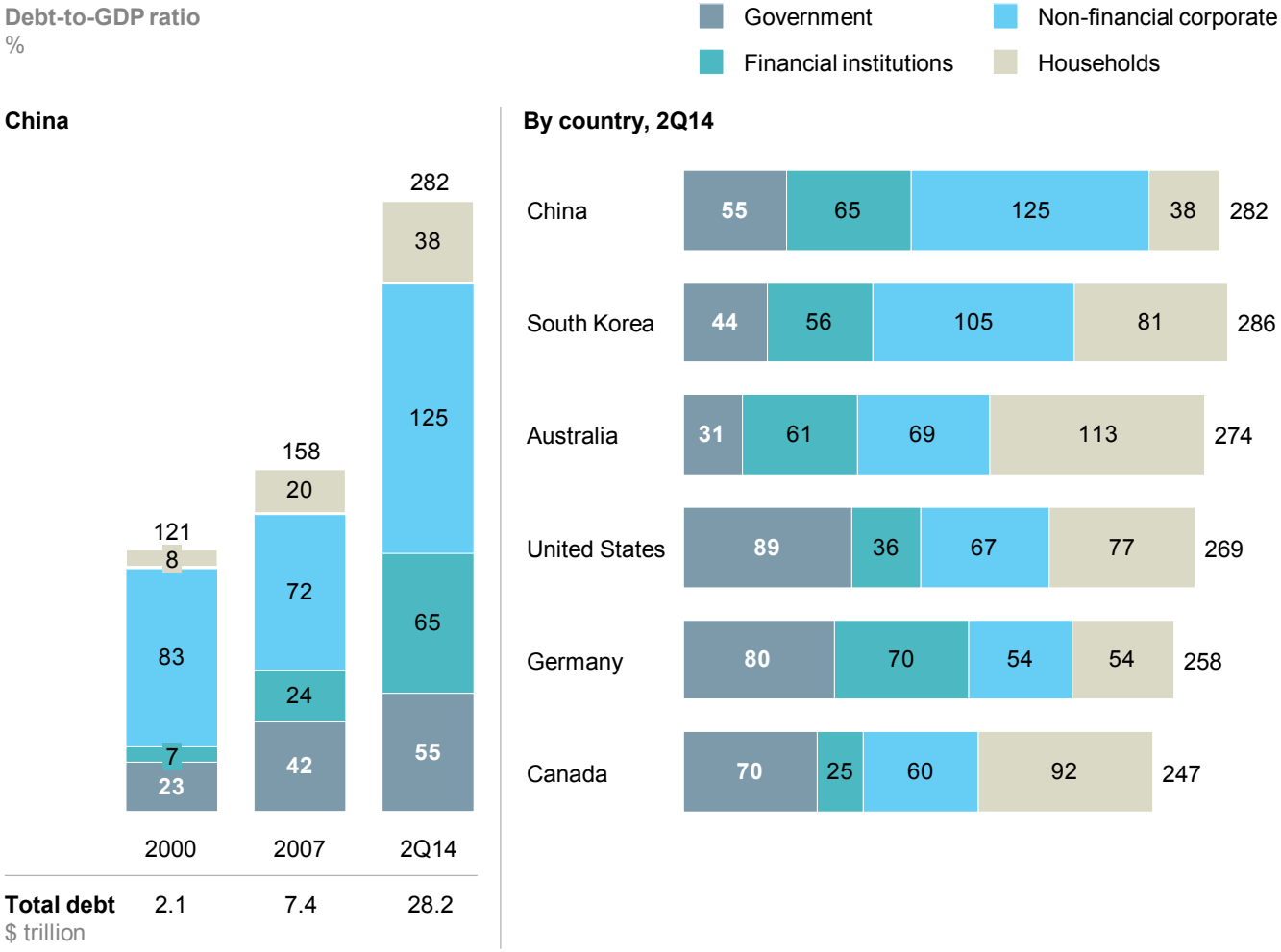
China's debt is rising rapidly, with several potential risks ahead

Since 2007, China's total debt (including debt of the financial sector) has nearly quadrupled, rising from $7.4 trillion to $28.2 trillion by the second quarter of 2014, or from 158 percent of GDP to 282 percent (Exhibit E7). China's overall debt ratio today appears manageable, although it is now higher in proportion to GDP than that of the United States, Germany, or Canada. Continuing the current pace of growth would put China at Spain's current level of debt—400 percent of GDP—by 2018. We find three particular areas of potential concern: the concentration of debt in real estate, the rapid growth and complexity of shadow banking in China, and the off-balance sheet borrowing by local governments.

We estimate that nearly half of the debt of Chinese households, corporations, and governments is directly or indirectly related to real estate, collectively worth as much as $9 trillion. This includes mortgages to homeowners; debt of property developers; lending to related industries, such as steel and cement; and debt raised by local governments for property development. This concentration in the property sector poses a significant risk. Property prices have risen by 60 percent since 2008 in 40 Chinese cities, and even more in Shanghai and Shenzhen. Residential real estate prices in prime locations in Shanghai are now only about 10 percent below those in Paris and New York. Over the past year, a correction has begun. Transaction volumes are down by around 10 percent across China, and unsold inventories are building up: smaller inland cities now have 48 to 77 months of inventory. A slowdown in the property market would be felt mostly in construction and related industries, rather than by households, which are not highly indebted. However, housing construction is an enormous sector, accounting for 15 percent of GDP. Thousands of small players in the industry, many of which rely on high-cost shadow banking loans, would have trouble keeping up with debt service payments in a prolonged slowdown.

Exhibit E7

China's debt reached 282 percent of GDP in 2014, higher than debt levels in some advanced economies



NOTE: Numbers may not sum due to rounding.

SOURCE: MGI Country Debt database; McKinsey Global Institute analysis

The rapid growth of shadow banking in China is a second area of concern: loans by shadow banking entities total $6.5 trillion and account for 30 percent of China's outstanding debt (excluding the financial sector) and half of new lending. Most of the loans are for the property sector. The main vehicles in shadow banking include trust accounts, which promise wealthy investors high returns; wealth management products marketed to retail customers; entrusted loans made by companies to one another; and an array of financing companies, microcredit institutions, and informal lenders. Both trust accounts and wealth management products are often marketed by banks, creating a false impression that they are guaranteed. The underwriting standards and risk management employed by managers of these funds are also unclear. Entrusted loans involve lending between companies, creating the potential for a ripple of defaults in the event that one company fails. The level of risk of shadow banking in China could soon be tested by the slowdown in the property sector.

The third potential risk in China is the growing debt accumulated in off-balance sheet local-government financing vehicles, which are used to fund infrastructure (airports, bridges, subways, industrial parks), social housing, and other projects. Local governments rely on these off-balance sheet entities because they have limited taxing authority, must share revenue with the central government, and until recently have not been permitted to issue municipal bonds. Since China's 2009 stimulus program, lending to local governments has surged, reaching $2.9 trillion. The central government has recognized the growing risk and in 2014 conducted an audit of local government finances, finding that 40 percent rely on land sales to make loan payments and that 20 percent of new borrowing is to repay older loans. The slowing of property markets puts these entities at risk of default.

We find three particular areas of potential concern in China: the concentration of debt in real estate, the rapid growth and complexity of shadow banking, and the off-balance sheet borrowing by local governments.

China's central government has the financial capacity to handle a financial crisis if one materializes—government debt is only 55 percent of GDP. Even if half of property-related loans defaulted and lost 80 percent of their value, we calculate that China's government debt would rise to 79 percent of GDP to fund the financial-sector bailout. However, the larger question is whether China could manage this without a significant slowdown in GDP growth (which then would put additional pressure on government finances). China's challenge today is to enact reforms to deflate the growing credit and property bubbles, increase transparency and risk management throughout the financial system, and create efficient bankruptcy courts and other mechanisms to resolve bad debt without provoking instability or financial crises.

The path forward: Learning to live with debt

The growing debt of the global economy is an unwelcome development seven years after the financial crisis began. It slows the recovery, raises the risk of new crises, and it limits the ability to respond to them. While significant deleveraging may prove elusive for many countries, effectively managing the growth of debt—and reducing it where necessary—is an imperative. We offer several ideas that warrant further discussion:

- **Encourage innovations in mortgage contracts.** More flexible mortgage contracts can avoid foreclosure and the associated social and economic costs. One proposal is a "shared responsibility mortgage," in which loan payments are reduced when home prices decline below the purchase price and revert when prices improve; in return, when the home is sold, the lender receives a portion of the capital gain.[8] A "continuous workout mortgage" would adjust payments automatically in response to triggers such as recession or job loss to enable borrowers to continue making payments and avoid default.[9] Or homeowners could be given incentives (or required) to purchase insurance to cover mortgage payments in case of job loss or other developments that inhibit their ability to pay. The benefits of these schemes should be weighed carefully against the costs and risks, but could improve financial system stability.

[8] Ibid. Atif Mian and Amir Sufi, *House of debt*, 2014.

[9] Robert J. Shiller et al., *Continuous workout mortgages*, NBER working paper number 17007, May 2011.

- **Improve processes for private-sector debt resolution.** Loan defaults, when they occur, can be made less disruptive. Non-recourse mortgages, which allow creditors to seize only the collateral when a loan is in default, are widely used in the United States. These facilitate relatively swift resolution of bad debts and enable households to extinguish debt through default and resume normal consumption. Recourse loans, which are common in most of the rest of the world, permit the lender to pursue a borrower's other assets and future income. As a result, borrowers try to make loan repayments under all circumstances, and they have a strong incentive to limit debt. The downside is that to keep up with loan payments, households may cut other spending dramatically, which can deepen and extend a recession. Non-recourse loans must be combined with strong macroprudential rules that limit excessive borrowing, but could facilitate more efficient resolution of bad debts when they occur.

- **Use macroprudential tools to dampen credit cycles.** The 2008 financial crisis was a reminder that, given the opportunity, some borrowers will take on too much debt. Macroprudential measures are intended to reduce those opportunities. For example, these measures may place limitations on loan-to-value ratios (LTVs) or restrict certain types of mortgages, such as interest-only loans. In addition, they may include countercyclical measures to dampen lending during periods of strong credit growth, for instance by raising capital requirements for banks. Most advanced economies today have adopted some macroprudential regulations, and these should be strengthened and expanded to consider the total leverage in the economy.

- **Reduce tax incentives for debt.** Given the role of housing debt and real estate bubbles in financial crises, it may be time to reconsider deductibility of mortgage interest and other tax preferences for housing debt. Interest deductibility benefits high-income households most and creates incentives for households to take out larger mortgages to maximize deductions. Reducing or phasing out the deductibility of interest on corporate debt would be more challenging, but policy makers should consider measures that would put debt and equity on a more equal footing. This could improve capital allocation in firms and also would reduce the incentives to invest in capital goods rather than labor. Such reforms may need to be accompanied by other adjustments to corporate tax codes, including perhaps reductions in marginal rates. While changes in tax policy are always difficult, they deserve attention.

- **Consider a broader range of tools for resolving sovereign debt.** Unilateral default is the most extreme option for countries struggling with unsustainable public debt. But today a broader range of options for restructuring debt may be available. Greece, for example, negotiated a partial debt restructuring in 2012 by modifying only the debt held by private investors. Stronger collective-action clauses would facilitate such restructuring by compelling bondholders to accept a majority vote to modify loans. In addition, when assessing the sustainability of government debt, more attention should be paid to net debt, which can be defined as excluding debt owned by other government agencies and central banks, rather than gross debt. In a sense, such debt is merely an accounting entry, representing a claim by one arm of government on another. Moreover, debt owned by central banks could be replaced upon maturity indefinitely, eliminating the future need to raise taxes or reduce government spending, with interest payments remitted to the national treasury. Focusing on net government debt provides a clearer picture of sustainability.

- **Improve data collection and monitoring of debt.** Better information is essential for avoiding future credit crises. Governments and businesses should invest in improving the granularity and reliability of data about debt. Government debt reporting remains relatively opaque. Treatment of unfunded future pension and health-care liabilities and intragovernment borrowing varies across governments, for example. Microeconomic data about household finances, including the liabilities, assets, and incomes of individual households, are available in only a few advanced economies but should be expanded to more countries. To monitor business debt, a central credit register that collects all data about commercial loans of a certain size from different sources could be helpful. This information would be useful for regulators as well as lenders.

- **Create a healthy mix of bank and non-bank credit intermediaries.** Given the constraints on bank lending due to new regulations, non-bank intermediaries will play an important role in funding economic growth. Corporate bond markets, which provide capital for large companies, could expand significantly in most countries, and private placements of bonds with insurers, pension funds, and other investors can provide financing for smaller companies. "Plain vanilla" securitization, which has proven sustainable in providing liquidity to the mortgage market, can be a useful component of the financial system and applied to other forms of debt, such as loans to small and medium-sized enterprises. New and fast-growing non-bank intermediaries, such as credit funds and online peer-to-peer lending platforms, could be another important source of non-bank lending, but should be monitored as they continue to grow and evolve. For all non-bank intermediaries, it will be important to strengthen reporting standards and monitoring to avoid excessive risk-taking and leverage.

- **Promote financial deepening in developing economies.** Rising levels of debt relative to GDP should be expected in developing economies, which need to fund growing businesses, infrastructure, and housing. This should be accompanied by the introduction of a wider range of financial products and services and more intermediaries, as well as the development of debt and equity capital markets. But developing economies today should also learn from the mistakes of recent years and take action now to avoid future financial crises. This includes strengthening regulations on lending, adopting macroprudential regulations, expanding rules for financial disclosure, and creating a legal system that protects the rights of minority shareholders and efficiently disposes of bad debt through bankruptcy. Many developing economies have these elements in place on paper, and the challenge now is ensuring they function effectively in practice.

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1. WHAT HAPPENED TO DELEVERAGING?

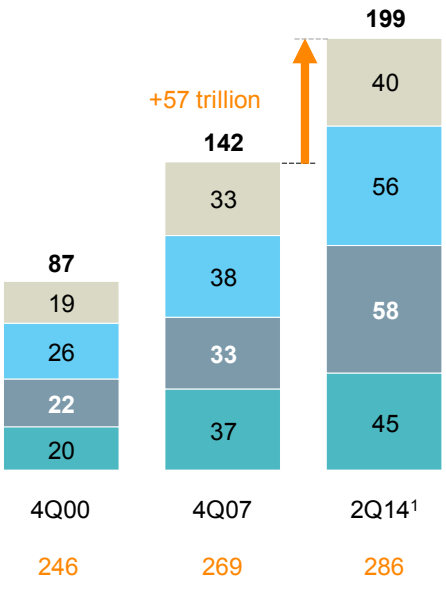
The global financial crisis of 2007–08 was sparked by the accumulation of excessive debt and leverage in many advanced economies, particularly in the household and financial sectors. After the September 2008 collapse of Lehman Brothers, governments took unprecedented actions to preserve the financial system. One reasonable expectation in the years following the crisis and the ensuing global recession was that actors across the economy would reduce their debts and deleverage.

However, rather than declining, global debt has continued to increase. Total global debt rose by $57 trillion from the end of 2007 to the second quarter of 2014, reaching $199 trillion, or 286 percent of global GDP (Exhibit 1). Rising government debt in advanced economies explains one-third of the overall growth, as falling tax revenue and the costs of financial-sector bailouts raised public sector borrowing. Growing debt of developing economies accounts for half of the growth. China's total debt has quadrupled since 2007, reaching $28 trillion, accounting for 37 percent of growth in global debt.

Exhibit 1

Global debt has increased by $57 trillion since 2007, outpacing world GDP growth

Global stock of debt outstanding by type[1]
$ trillion, constant 2013 exchange rates



	Compound annual growth rate (%)	
	2000–07	2007–14[1]
	7.3	5.3
Household	8.5	2.8
Corporate	5.7	5.9
Government	5.8	9.3
Financial	9.4	2.9

Total debt as % of GDP	246	269	286

1 2Q14 data for advanced economies and China; 4Q13 data for other developing economies.
NOTE: Numbers may not sum due to rounding.

SOURCE: Haver Analytics; national sources; *World economic outlook*, IMF; BIS; McKinsey Global Institute analysis

The fact that there has been very little deleveraging around the world since 2007 is cause for concern. A growing body of evidence shows that economic growth prospects for countries with very high levels of debt are diminished. High levels of debt—whether government or private-sector—are associated with slower GDP growth in the long term, and highly indebted countries are also more likely to experience severe and lengthy downturns in the event of a crisis, as consumption and business investment plunge.[10] Indeed, the latest research demonstrates how high levels of debt lead to a vicious cycle of falling consumption and employment, causing long and deep recessions.[11]

Seven years after the global financial crisis, no major economies and only five developing countries have reduced the ratio of debt to GDP.

In this chapter, we explore the evolution of debt in 47 countries in the post-crisis era and the prospects for deleveraging. We focus on debt of the "real economy"—households, non-financial companies, and governments—since a high level of debt of these sectors is associated with slower GDP growth and greater risk of financial crises. We address the evolution of financial-sector debt in Chapter 3.

Our main conclusions are that deleveraging is quite rare and that new tools are needed to manage debt. The examples of countries that successfully deleveraged in the past may not apply today. For the most highly indebted countries, neither growth nor austerity alone is a plausible solution. New approaches are needed to maintain stability in a world of high debt. This includes innovations in mortgages and other debt contracts to better share risk, clearer rules for restructuring debt and recognizing write-offs, eliminating tax incentives for debt, considering new options for reducing government debt, and using countercyclical measures to dampen credit booms.

Nearly all countries have increased leverage since the crisis

Seven years after the global financial crisis, no major economy and only five developing ones have reduced the ratio of debt to GDP (Exhibit 2). In contrast, 14 countries have increased total debt-to-GDP ratios by more than 50 percentage points.[12]

Exhibit 3 shows the change in the ratio of debt to GDP in countries by sector since 2007 and ranks countries by their debt-to-GDP ratios. In a range of countries, including advanced economies in Europe and some Asian countries, total debt now exceeds three times GDP. Japan leads at 400 percent of GDP, followed by Ireland, Singapore, and Portugal, with debts ranging from 350 to 400 percent. Belgium, the Netherlands, Greece, Spain, and Denmark all have debt exceeding 300 percent of GDP. The high levels of debt in some of these countries are explained by their role as business hubs and are not necessarily a sign of heightened risk (see Box 1, "High debt in business and financial hubs").[13]

[10] Ibid. Carmen M. Reinhart, Vincent R. Reinhart, and Kenneth S. Rogoff, "Public debt overhangs," Summer 2012.

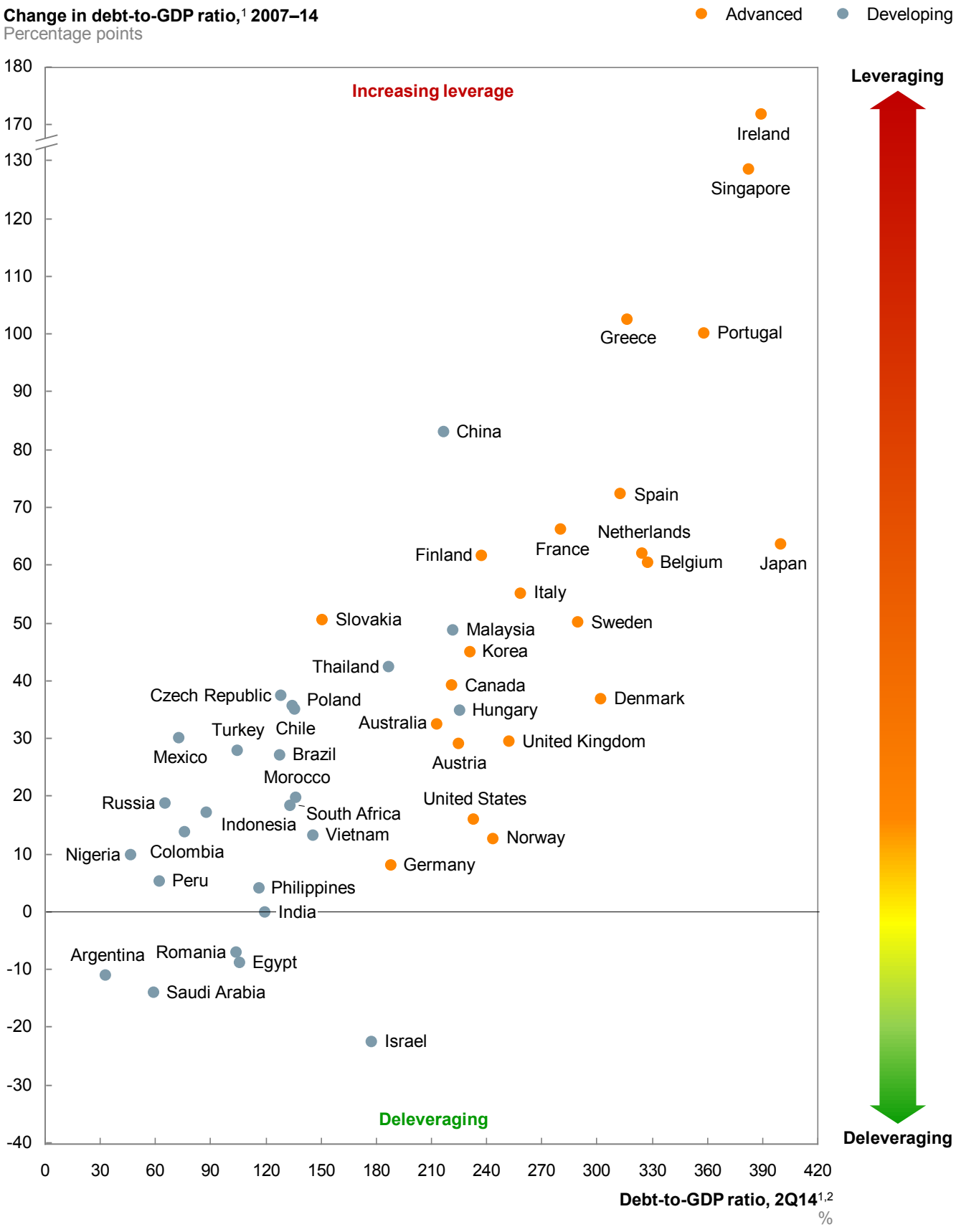
[11] Ibid. Atif Mian and Amir Sufi, *House of debt*, 2014.

[12] This pattern of rising overall leverage has been observed in academic papers, notably Luigi Buttiglione et al., "Deleveraging? What deleveraging?" *Geneva Reports on the World Economy*, issue 16, September 2014.

[13] In addition, some countries have regional or global financial hubs and have high levels of financial-sector debt as a result. These include Ireland, Singapore, and the United Kingdom. We discuss these in Box 1.

Exhibit 2

The ratio of debt to GDP has increased in all advanced economies since 2007



1 Debt owed by households, non-financial corporates, and governments.
2 2Q14 data for advanced economies and China; 4Q13 data for other developing economies.

SOURCE: Haver Analytics; national sources; McKinsey Global Institute analysis

Exhibit 3

Change in debt-to-GDP ratio since 2007 by country

Ranked by real economy debt-to-GDP ratio, 2Q14[1]

Advanced economy
Developing economy
Leveraging
Deleveraging

Rank	Country	Debt-to-GDP ratio[1] %	Real economy debt change, 2007–14 Percentage points				Financial sector debt change
			Total	Government	Corporate	Household	
1	Japan	400	64	63	2	-1	6
2	Ireland	390	172	93	90	-11	-25
3	Singapore	382	129	22	92	15	23
4	Portugal	358	100	83	19	-2	38
5	Belgium	327	61	34	15	11	4
6	Netherlands	325	62	38	17	7	38
7	Greece	317	103	70	13	20	1
8	Spain	313	72	92	-14	-6	-2
9	Denmark	302	37	22	7	8	37
10	Sweden	290	50	1	31	18	37
11	France	280	66	38	19	10	15
12	Italy	259	55	47	3	5	14
13	United Kingdom	252	30	50	-12	-8	2
14	Norway	244	13	-16	16	13	16
15	Finland	238	62	29	17	15	24
16	United States	233	16	35	-2	-18	-24
17	South Korea	231	45	15	19	12	2
18	Hungary	225	35	15	21	-1	10
19	Austria	225	29	23	6	0	-21
20	Malaysia	222	49	17	16	16	6
21	Canada	221	39	18	6	15	-6
22	China	217	83	13	52	18	41
23	Australia	213	33	23	-1	10	-8
24	Germany	188	8	17	-2	-6	-16
25	Thailand	187	43	11	6	26	21
26	Israel	178	-22	-4	-21	3	-2
27	Slovakia	151	51	28	8	14	-5
28	Vietnam	146	13	10	-1	5	2
29	Morocco	136	20	8	7	5	3
30	Chile	136	35	6	20	9	9
31	Poland	134	36	14	9	13	9
32	South Africa	133	19	18	2	-2	-3
33	Czech Republic	128	37	19	9	9	4
34	Brazil	128	27	3	15	9	13
35	India	120	0	-5	6	-1	5
36	Philippines	116	4	-3	9	-2	-5
37	Egypt	106	-9	9	-18	0	-8
38	Turkey	104	28	-4	22	10	11
39	Romania	104	-7	26	-35	1	-4
40	Indonesia	88	17	-5	17	6	-2
41	Colombia	76	14	1	8	5	3
42	Mexico	73	30	19	10	1	-1
43	Russia	65	19	3	9	7	-4
44	Peru	62	5	-10	11	5	2
45	Saudi Arabia	59	-14	-15	2	-1	-8
46	Nigeria	46	10	7	1	2	-1
47	Argentina	33	-11	-14	1	2	-5

1 Includes debt of households, non-financial corporations, and government; 2Q14 data for advanced economies and China; 2013 data for other developing economies.

NOTE: Numbers may not sum due to rounding.

SOURCE: *World economic outlook*, IMF; BIS; Haver Analytics; national central banks; McKinsey Global Institute analysis

Box 1. High debt in business and financial hubs

For some nations, an unusually high debt-to-GDP ratio does not signal imminent danger. These are places that serve as business and financial hubs. The high level of financial-sector and corporate debt that results may or may not involve heightened risks. Singapore and Ireland, for example, have tax regimes and other regulations that make them attractive for locating operations of global corporations. The debt incurred by these entities is used to fund activities in other nations, so its relationship to the host country's GDP is not indicative of risk. As a major business hub, Singapore has the highest ratio of non-financial corporate debt in the world, at 201 percent of GDP in 2014, almost twice the level of 2007. However nearly two-thirds of companies with more than $1 billion in revenue in Singapore are foreign subsidiaries.[1] Many of them raise debt in Singapore to fund business operations across the region, and this debt is supported by earnings in other countries. Singapore has very high financial-sector debt as well (246 percent of GDP), reflecting the presence of many foreign banks and other financial institutions that have set up regional headquarters there.

Ireland has the second-highest ratio of non-financial corporate debt to GDP in the world—189 percent in 2014. But this mostly reflects the attraction of Ireland's corporate tax laws, which lure regional (and sometimes global) operations of companies from around the world. Foreign-owned enterprises contribute 55 to 60 percent of the gross value added of all companies in Ireland and, we estimate, at least half of Ireland's non-financial corporate debt. These foreign players also help explain Ireland's very high ratio of exports to GDP—108 percent, compared with 51 percent for Germany and 14 percent for the United States.

The United Kingdom, Ireland, and the Netherlands are also financial hubs, which explains their very high levels of financial-sector debt (183 percent of GDP, 291 percent, and 362 percent, respectively). Depending on the country's legal framework, these financial-sector debts may create risks for the domestic economy. In Ireland, the overseas operations of the Anglo Irish Bank were treated as branches, so when the financial crisis struck, the Irish government bailout of the bank covered many foreign depositors.

The Netherlands is home to many off-balance sheet entities that channel funding to subsidiaries abroad. Created for tax purposes, these entities are funded by debt but have little connection to the domestic economy. Some 49 percent of Dutch financial-sector debt is held by captive institutions, holding companies, and special-purpose entities set up to raise funds in open markets to be used by their parent corporation.

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[1] *Urban world: The shifting global business landscape*, McKinsey Global Institute, October 2013.

$19T
Increase in government debt of advanced economies since 2007

Growing government debt has offset private-sector deleveraging in advanced economies

Rising government debt (debt of central and local governments, not state-owned enterprises) has been a significant cause of rising global debt since 2007. Government debt grew by $25 trillion between 2007 and mid-2014, with $19 trillion of that in advanced economies. To be sure, the growth in government spending and debt during the depths of the recession was a welcome policy response. At their first meeting in Washington in November 2008, the G20 nations collectively urged policy makers to use fiscal stimulus to boost growth.

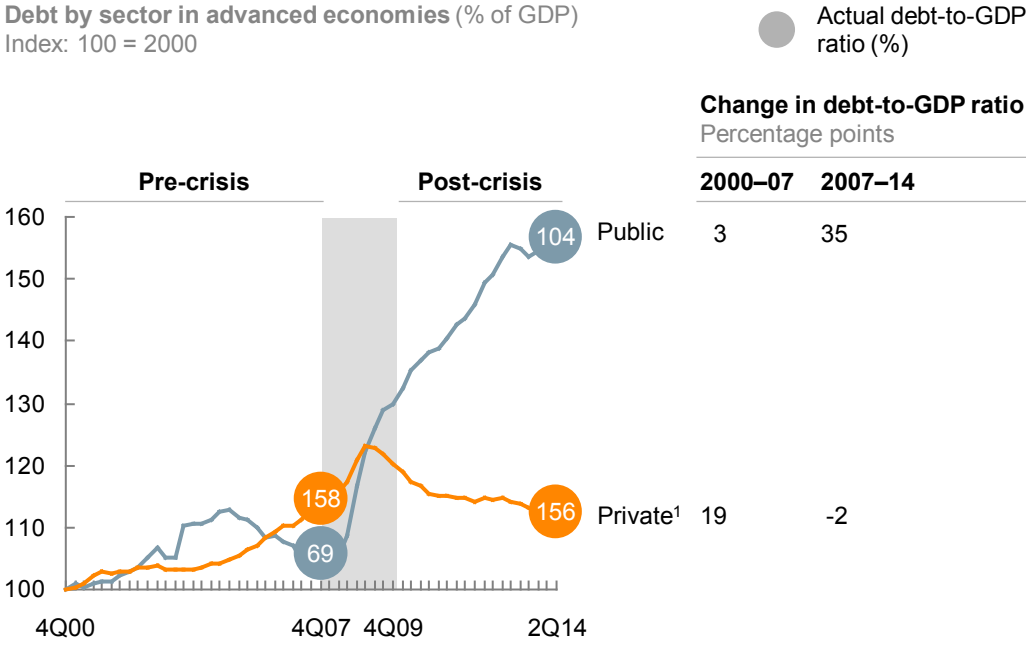
Not surprisingly, the rise in government debt, as a share of GDP, has been steepest in countries that faced the most severe recessions: Ireland, Spain, Portugal, and the United Kingdom. The challenge for these countries now is to find ways to reduce very high levels of debt.

Growth in public-sector debt has offset private-sector deleveraging in the few countries where private-sector deleveraging has taken place. Across advanced economies, we see that debt of households and non-financial corporations has declined relative to GDP since 2008—but not nearly as much as the ratio of public sector debt to GDP has increased (Exhibit 4). Indeed, in only four advanced economies (Germany, Spain, the United Kingdom, and the United States) has private-sector debt (debt of households and corporations) declined in relation to GDP. In a broad range of countries—including Sweden, France, Belgium, Singapore, China, Malaysia, and Thailand—private-sector debt has grown by more than 25 percentage points of GDP since the crisis. This raises fundamental questions about why modern economies seem to require increasing amounts of debt to support GDP growth and how growth can be sustained.

Exhibit 4

In advanced economies, private-sector deleveraging has been accompanied by a rapid increase in public debt

Debt by sector in advanced economies (% of GDP)
Index: 100 = 2000



1 Includes household and non-financial corporate sector debt.
NOTE: Debt as percent of GDP is indexed to 100 in 2000; numbers here are not actual figures.

SOURCE: Haver Analytics; national central banks; McKinsey Global Institute analysis

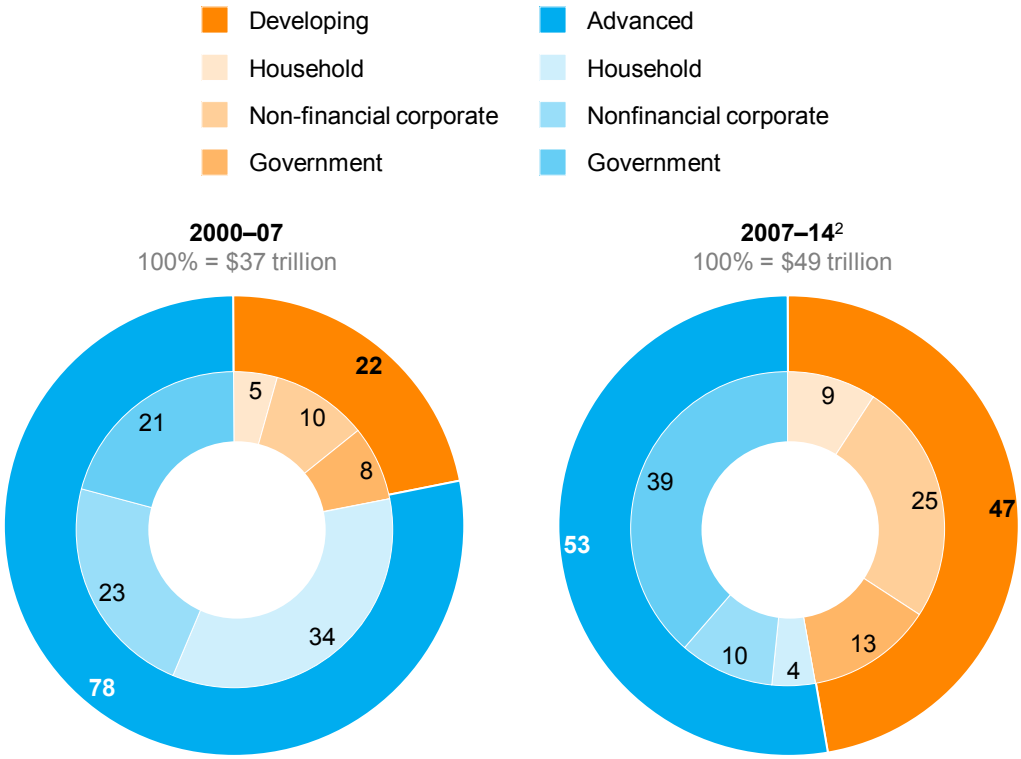
Emerging market debt has grown, but from low levels

Developing countries have accounted for 47 percent of growth in global debt since 2007—more than twice their 22 percent share of debt growth from 2000 to 2007 (Exhibit 5). However, these countries started from very low levels of debt in 2007. On average, their debt is just 121 percent of GDP, less than half the 280 percent average in advanced economies (Exhibit 6).

Exhibit 5

Growth in global debt has shifted since 2007, with developing economies accounting for half of new debt

Change in debt outstanding—by country group and type of debt[1]
%; $ trillion, constant 2013 exchange rates



1 Includes debt of households, non-financial corporations, and government; 2Q14 data for advanced economies and China, 4Q13 data for other developing economies.
2 2Q14 data for advanced economies and China; 4Q13 data for other developing economies.
NOTE: Numbers may not sum due to rounding.

SOURCE: Haver Analytics; national sources; *World economic outlook*, IMF; BIS; McKinsey Global Institute analysis

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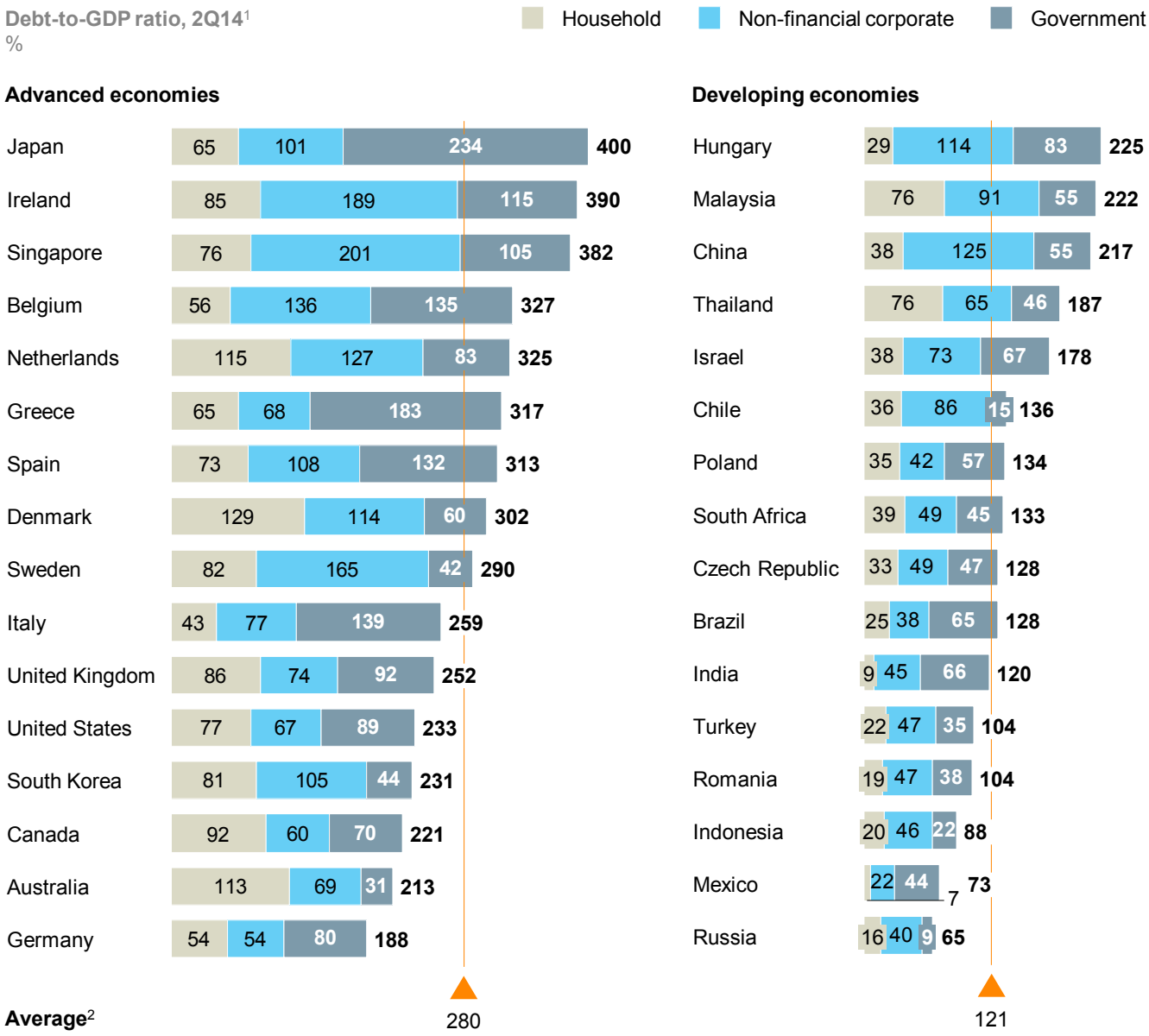
Recent growth in emerging-market debt mainly reflects healthy financial deepening. Rapid urbanization, industrialization, and building of much-needed infrastructure have generated significant demand for credit in developing economies. The financial systems in these countries are expanding to meet this demand. A broader range of companies and households now have access to formal banking systems, and corporate bond markets have emerged in some countries.

Part of the growth in debt in emerging markets has been funded by foreign creditors. The share of emerging-market bonds owned by foreign investors more than doubled from 2009 to 2013, rising from $817 billion to $1.6 trillion, a growth rate of 19 percent a year. This reflects investors' search for higher yields than those offered by the ultra-low interest rates on bonds in advanced economies.

Exhibit 6

The debt-to-GDP ratio in developing economies remains less than half the level in advanced economies


Debt-to-GDP ratio, 2Q14[1]
%
Household
Non-financial corporate
Government
Advanced economies
Japan 65 101 234 400
Ireland 85 189 115 390
Singapore 76 201 105 382
Belgium 56 136 135 327
Netherlands 115 127 83 325
Greece 65 68 183 317
Spain 73 108 132 313
Denmark 129 114 60 302
Sweden 82 165 42 290
Italy 43 77 139 259
United Kingdom 86 74 92 252
United States 77 67 89 233
South Korea 81 105 44 231
Canada 92 60 70 221
Australia 113 69 31 213
Germany 54 54 80 188
Average[2] 280
Developing economies
Hungary 29 114 83 225
Malaysia 76 91 55 222
China 38 125 55 217
Thailand 76 65 46 187
Israel 38 73 67 178
Chile 36 86 15 136
Poland 35 42 57 134
South Africa 39 49 45 133
Czech Republic 33 49 47 128
Brazil 25 38 65 128
India 9 45 66 120
Turkey 22 47 35 104
Romania 19 47 38 104
Indonesia 20 46 22 88
Mexico 22 44 7 73
Russia 16 40 9 65
121

1 Includes debt of households, non-financial corporations, and government; 2Q14 data for advanced economies and China, 4Q13 data for other developing economies.
2 Average of 22 advanced and 25 developing economies in the MGI Country Debt database.
NOTE: Numbers may not sum due to rounding.

SOURCE: Haver Analytics; national sources; *World economic outlook*, IMF; BIS; McKinsey Global Institute analysis

However, despite the growing availability of foreign credit for developing economies, the majority of their debt is still financed by domestic banks and investors. In our sample of developing economies, foreign investors hold 22 percent of total outstanding bonds, on average. However, in four countries in our sample—Hungary, Indonesia, Peru, and Turkey—foreign investors own more than 40 percent of bonds outstanding. This might create more risk if foreign investors withdraw their funds in reaction to external events, such as rising interest rates in the United States. Restructuring debt of external creditors may also be more difficult, as we discuss in Chapter 5.

China alone accounts for a large share of the growth in emerging market debt since 2007. Its total debt has quadrupled, reaching 217 percent of GDP as of the second quarter of 2014—and 282 percent of GDP if we include debt of its financial sector. This total debt ratio is now higher than in advanced economies such as Germany or Canada. Chinese non-financial companies alone added $9 trillion in debt from 2007 to mid-2014, which is roughly equivalent to the total debt of the German economy. In the same period, Chinese household debt quadrupled, to $4 trillion, but remains a modest 58 percent of disposable income. We explore the rise of China's debt in Chapter 4.

282%
Total debt-to-GDP ratio in China

Lessons from historical deleveraging episodes

Although each financial crisis and deleveraging episode has some unique dynamics and root causes, historical examples offer some lessons. Most historical deleveraging episodes either took place before the modern global economy and financial system emerged after 1970, or occurred in developing countries.[14] In the era of globalization, we consider the financial crises and deleveraging episodes of three nations—Sweden, Finland, and Japan—which show the difficulties facing deleveraging efforts.

Sweden and Finland: A model for rapid deleveraging (in small, open economies)

In Sweden and Finland, bank deregulation in the 1980s led to a credit boom and rising leverage, which fueled real estate and equity market bubbles. A financial crisis in 1990 sparked the collapse of these bubbles, sending the economies into deep recessions.[15] The subsequent deleveraging of these economies unfolded in two phases: private-sector deleveraging, followed by reductions in public-sector leverage.[16]

In the first phase of deleveraging, lasting about five years, private-sector debt was reduced significantly while government debt rose rapidly. In Sweden, private-sector debt (of households and non-financial corporations) fell, from 153 percent of GDP in 1990 to 113 percent in 1996; in Finland, private-sector debt fell from 121 percent of GDP to 100 percent (Exhibit 7).

Deleveraging in Sweden and Finland was the result of both policies and a fortunate upturn in the global economy. Both countries quickly nationalized failing banks and wrote down bad loans. Both initiated wide-ranging structural reforms to increase competitiveness and reform generous welfare regimes. Sweden liberalized foreign investment rules, which led to significant investments in the manufacturing sector. Perhaps most importantly, the value of their currencies plunged during the crisis—18 percent in Sweden and 30 percent in Finland—which boosted their export competitiveness.

While it was not enacted until 1994, Swedish lawmakers began work on a comprehensive debt-relief program for heavily indebted households when the real estate bubble was building in the late 1980s. The program provides households with a one-time opportunity to restructure debt and avoid bankruptcy and foreclosure. If debtors demonstrate that they have made reasonable efforts to make their payments and meet other qualifications, a state agency negotiates a workout plan with creditors that reduces monthly payments to a share of income (with allowances for food, clothing, and other expenses, based on family size). The program was simplified in 2007, eliminating an initial step that required households to negotiate directly with creditors before applying for restructuring.[17]

[14] Reinhart and Rogoff, for instance, study 268 banking crises in 66 countries since 1800. Carmen M. Reinhart and Kenneth S. Rogoff, *This time is different: Eight centuries of financial folly*, Princeton University Press, 2009.

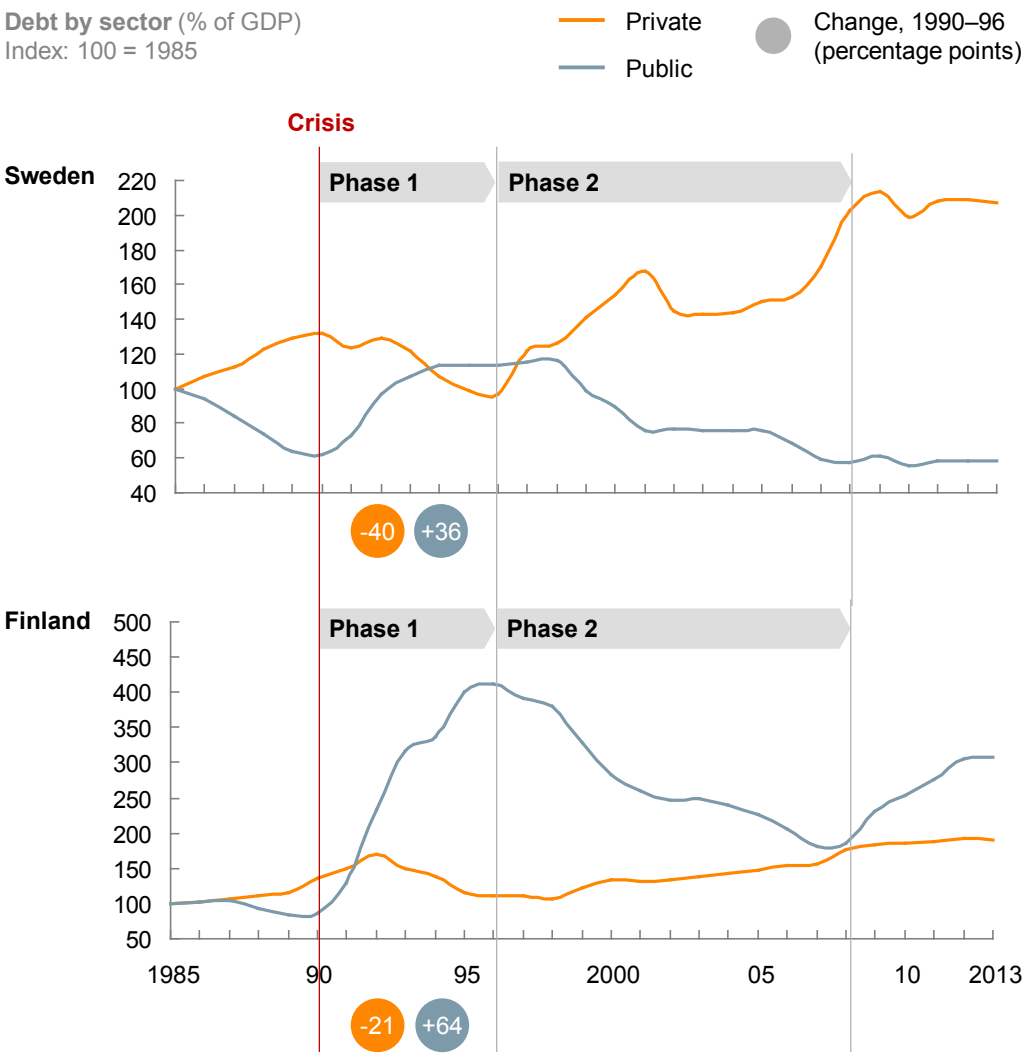
[15] Lars Jonung, Jaakko Kiander, and Pentti Vartia, *The great financial crisis in Finland and Sweden: The dynamics of boom, bust and recovery, 1985–2000*, European Commission Directorate-General for Economic and Financial Affairs, Economic Papers number 350, December 2008.

[16] *Debt and deleveraging: Uneven progress on the path to growth*, McKinsey Global Institute, January 2012.

[17] Jason T. Kilborn, "Out with the new, in with the old: As Sweden aggressively streamlines its consumer bankruptcy system, have U.S. reformers fallen off the learning curve?" *American Bankruptcy Law Journal*, volume 80, 2007.

Exhibit 7

In the early 1990s, Sweden and Finland followed a deleveraging path with two distinct phases



NOTE: Debt as percent of GDP is indexed to 100 in 1985; numbers here are not actual figures. Not to scale.

SOURCE: *World economic outlook*, IMF; BIS; Haver Analytics; national central banks; McKinsey Global Institute analysis

The second phase of deleveraging began in 1997, as growing exports—aided by the currency depreciation early in the crisis and accession to the European Union—lifted GDP growth and tax receipts. At that point, private-sector credit began to grow again and governments undertook fiscal tightening to bring their budgets into balance. From 1996 until 2002, Sweden had a government budget surplus in most years, and the ratio of government debt relative to GDP fell from 80 percent to 54 percent. Finland had an even longer period of government deleveraging, in which public debt fell from 81 percent in 1996 to 36 percent in 2007.

An interesting note on these deleveraging episodes is that the ratio of total debt to GDP did not decline much during either phase of deleveraging. In the first phase, growing government debt offset private-sector deleveraging. In the second phase, government deleveraging was offset by renewed growth in private-sector debt. In Finland, total debt relative to GDP rose from 138 percent in 1990 to 181 percent in 1996, and it remained

around that level for the next decade. In Sweden, total debt relative to GDP was 197 percent at the start of the crisis in 1990, and it remained within 10 percentage points of that level until 2002. Reducing total debt relative to GDP is therefore rare.

The success of Sweden and Finland in returning to robust economic growth after a financial crisis remains a model of deleveraging. However, the parallels to the situation of most advanced economies today are limited. In the United States, the United Kingdom, and the Eurozone, government debt has increased since 2007 by about the same amount as in Sweden and Finland during the 1990s, but private-sector deleveraging has been more modest (Exhibit 8). This reflects important structural differences. Sweden and Finland were small, open economies, in which large currency depreciations helped boost exports in a growing world economy. Exports amounted to more than 40 percent of GDP in the years after the crisis in both countries. Today, global demand remains weak, and unlike in the 1990s, many large economies need to deleverage simultaneously. Furthermore, members of the Eurozone cannot influence the exchange rates of their currency (although the euro has lost value against the US dollar, which helps). Nonetheless, the policy responses of the Swedish and Finnish examples are instructive: rapid recognition of bad loans and restructuring of the banking system, fiscal support of the economy, and significant and immediate private-sector deleveraging are essential.

Japan: Delayed deleveraging and suppressed growth

234%
Size of Japanese government debt relative to GDP

Japan offers a contrasting and cautionary tale of debt and deleveraging. As in the Nordic countries, banking deregulation in the 1980s fueled a credit bubble and soaring real estate and equity prices. Japan's corporate debt rose from 107 percent of GDP in 1980 to 146 percent in 1990, while household debt grew from 45 percent of GDP to 65 percent. The bubble burst in 1990, and the Nikkei 225 lost 35 percent of its value in the next 12 months. The economy sank into recession that lasted more than a decade.

The subsequent "balance sheet recession" is described in detail by economist Richard Koo.[18] Rather than falling, Japan's private-sector debt-to-GDP ratio increased by five percentage points in the first five years after the crisis began (Exhibit 9). Although Japanese lenders knew that many of the corporate loans were troubled, they hoped that the indebted companies would regain their strength. Banks, therefore, continued to roll over bad loans, rather than declaring them delinquent and forcing companies into bankruptcy. Meanwhile, the government boosted fiscal spending in an attempt to spur economic growth. Government debt rose from 59 percent of GDP in 1990 to 108 percent in 1998—and has continued to rise since then.

Japan's experience after its financial crisis diverged from the Swedish and Finnish paths in other important ways. First, Japan could not rely heavily on exports to lift overall GDP growth because it is a large economy in which exports account for only about 17 percent of GDP.[19] In addition, the yen appreciated rather than depreciated after the financial crisis, weakening export momentum. Also, Japan did not make the structural reforms that were needed to boost productivity and competitiveness, and it did not restructure its banks or address the growing volume of non-performing loans in its banking sector.

Today, Japan has experienced nearly a quarter century of slow growth. It has continued to run a fiscal deficit, and government debt has risen to 234 percent of GDP, by far the highest in the world.[20] While some of today's crisis countries have started private-

[18] Richard C. Koo, *The holy grail of macroeconomics: Lessons from Japan's Great Recession,* Wiley, 2009.

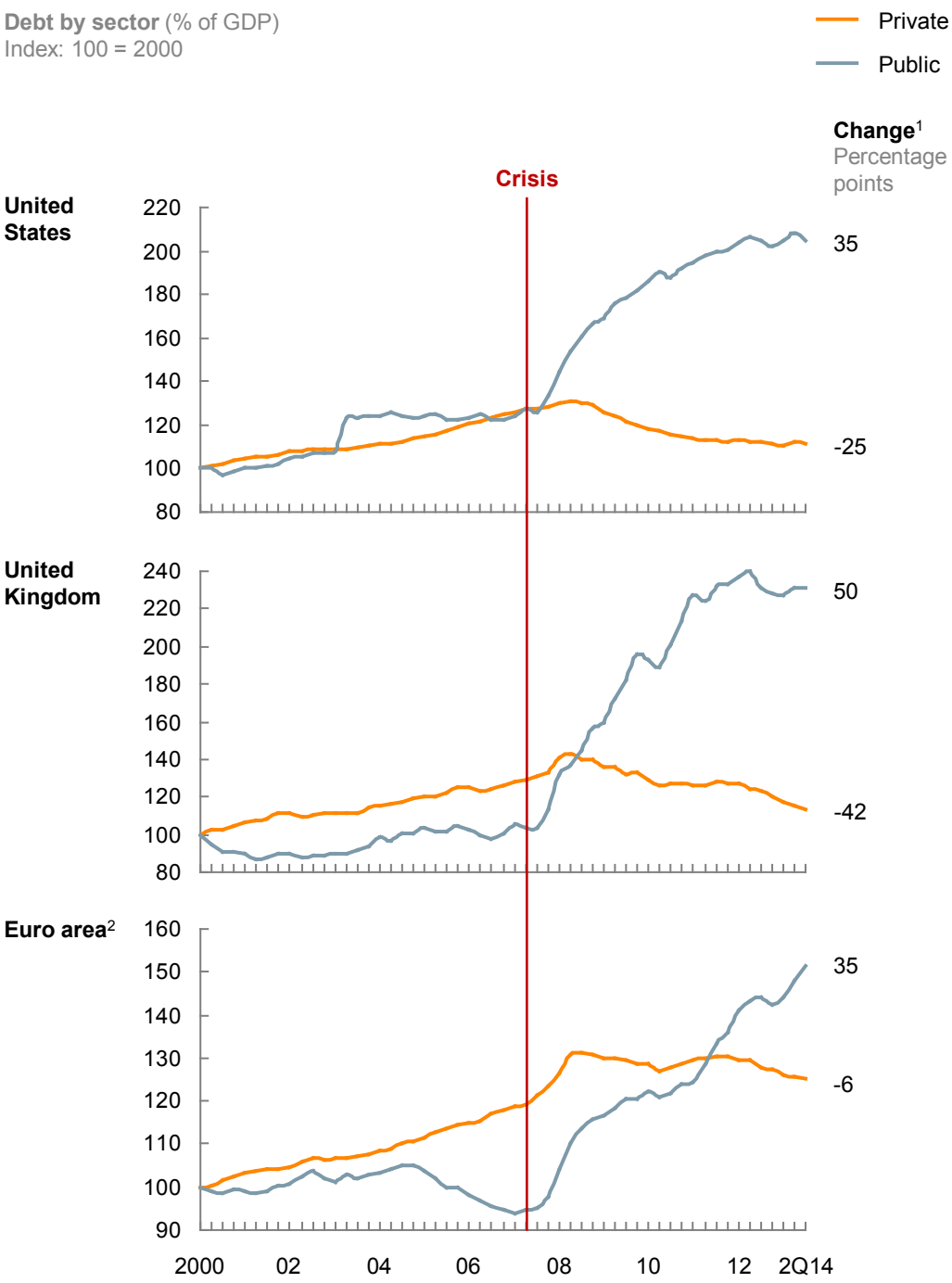
[19] By 2000, exports were 45 percent of GDP in Sweden and 44 percent in Finland—but only 11 percent in Japan. This reflects the large size of Japan's domestic economy, rather than export weakness.

[20] It should be noted, however, that a large portion of debt securities issued by the central government and the Fiscal Investment and Loan Program are held as assets by local governments and social security funds. If we deduct those holdings, net public debt in Japan is 138 percent of GDP.

sector deleveraging, Japan's experience illustrates the difficulties faced by large, mature economies that take on excessive amounts of debt. Japan still struggles with weak growth fundamentals, and, as noted, it is too large for exports alone to be a significant driver of GDP growth. Similar characteristics, it should be noted, are present in most advanced economies today.

Exhibit 8

Government debt has grown rapidly in most advanced economies and private-sector deleveraging has been modest

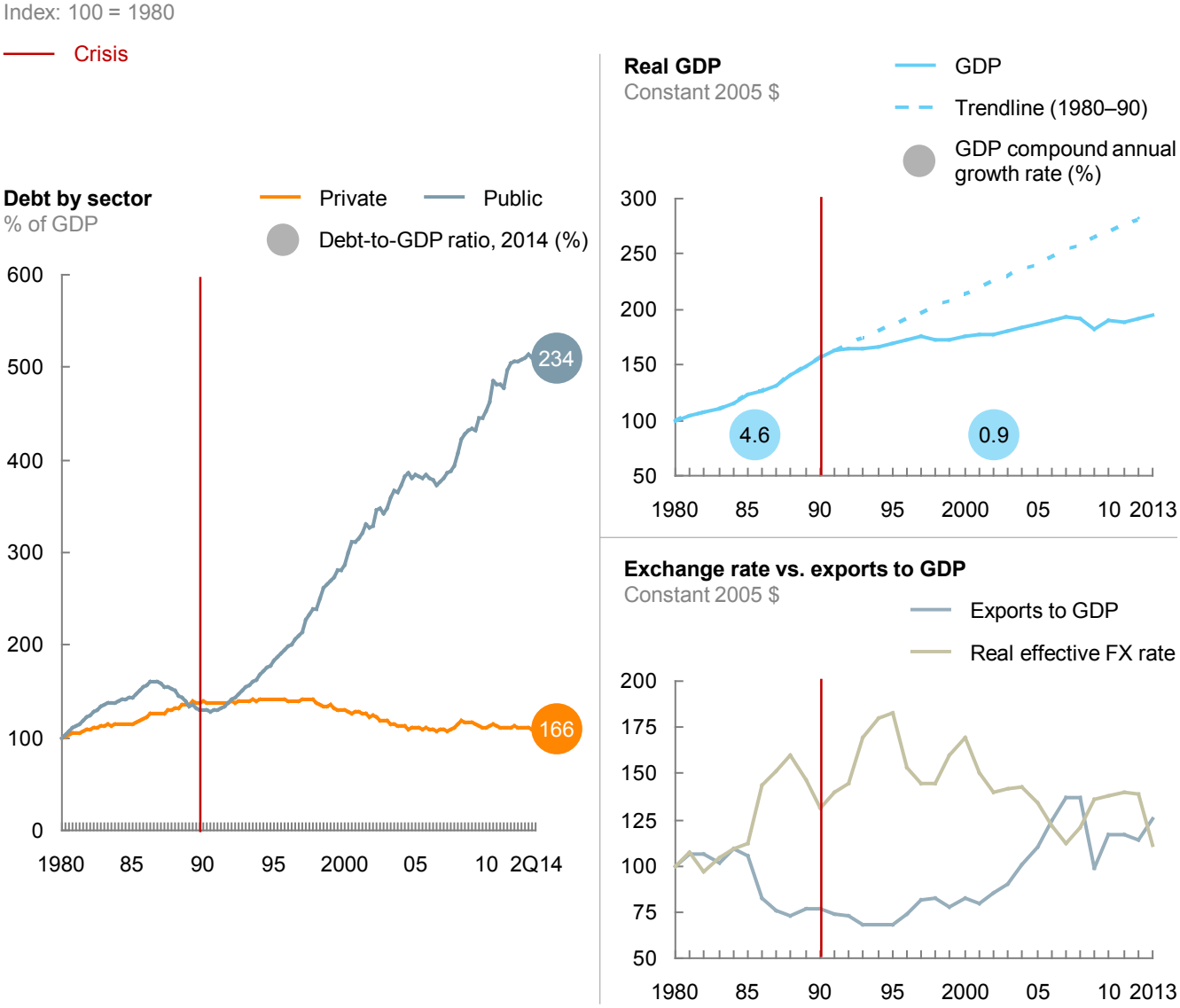


1 For public debt, percentage point change between 4Q07 and 2Q14; for private debt, percentage point change between peak (1Q09) and 2Q14.
2 Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, Netherlands, Portugal, Slovakia, and Spain.
NOTE: Debt as percent of GDP is indexed to 100 in 2000; numbers here are not actual figures. Not to scale.

SOURCE: *World economic outlook*, IMF; BIS; Haver Analytics; national central banks; McKinsey Global Institute analysis

Exhibit 9

In Japan, private-sector deleveraging was delayed and limited, public debt rose sharply, and GDP growth has been modest for about 25 years



NOTE: Debt as percent of GDP is indexed to 100 in 1980; numbers here are not actual figures.

SOURCE: *World economic outlook*, IMF; BIS; Haver Analytics; national central banks; McKinsey Global Institute analysis

Government deleveraging: A broader range of solutions is needed

The combination of a deep recession and slow recovery since the financial crisis has left many advanced economies with very high levels of government debt. With the possible exceptions of the United States and the United Kingdom, advanced economies continue to suffer from weak demand and diminished long-term growth prospects, due to factors such as aging and shrinking labor forces.[21] Given current growth projections, interest rates, and fiscal balances, government debt is likely to continue to grow. Policy makers, therefore, will need to consider a broader range of actions to stabilize or reduce government debt.

[21] See *Global growth: Can productivity save the day in an aging world?* McKinsey Global Institute, January 2015.

Government debt is projected to continue to grow in most countries

To reduce their debt-to-GDP ratios, governments need to either run fiscal surpluses large enough to repay debt (reducing the numerator in the ratio) or raise nominal GDP growth (the denominator). The growth of this ratio is described by the mathematical relationship between a country's primary balance (or the fiscal balance excluding interest payments), the interest rate it pays on debt, and the growth rate of nominal GDP (which in turn depends on the inflation rate and real GDP growth rate). This relationship is described by the equation below:

$$(\mathrm{D/G})_t = \left[\left[\frac{1 + i_t}{1 + g_t}\right](\mathrm{D/G})_{t-1}\right] - \mathrm{Pb}_t$$

where

$(D/G)_t$ = projected government debt-to-GDP ratio for next period;

i = interest rate on government bond;

g = nominal GDP growth forecast;

$(D/G)_{t-1}$ = current government debt-to-GDP ratio;

and Pb_t = primary balance, i.e., fiscal balance excluding interest payments.

Given current primary fiscal balances, interest rates, inflation, and projected real GDP growth rates over the next five years, we calculate that the ratio of government debt to GDP will continue to grow in many advanced economies, including Japan, the United States, the United Kingdom, and a range of European countries (Exhibit 10). Greece, Ireland, and Germany are rare exceptions in which government debt-to-GDP ratios are projected to decline. Debt in some countries would become very large: Japan's government debt, for instance, could exceed 250 percent of GDP by 2019, up from 234 percent today. A range of European economies are projected to have government debt-to-GDP ratios that exceed 150 percent: Portugal (171 percent), Spain (162 percent), and Italy (151 percent), while Greece's government debt is projected to be 175 percent of GDP despite the improvement.

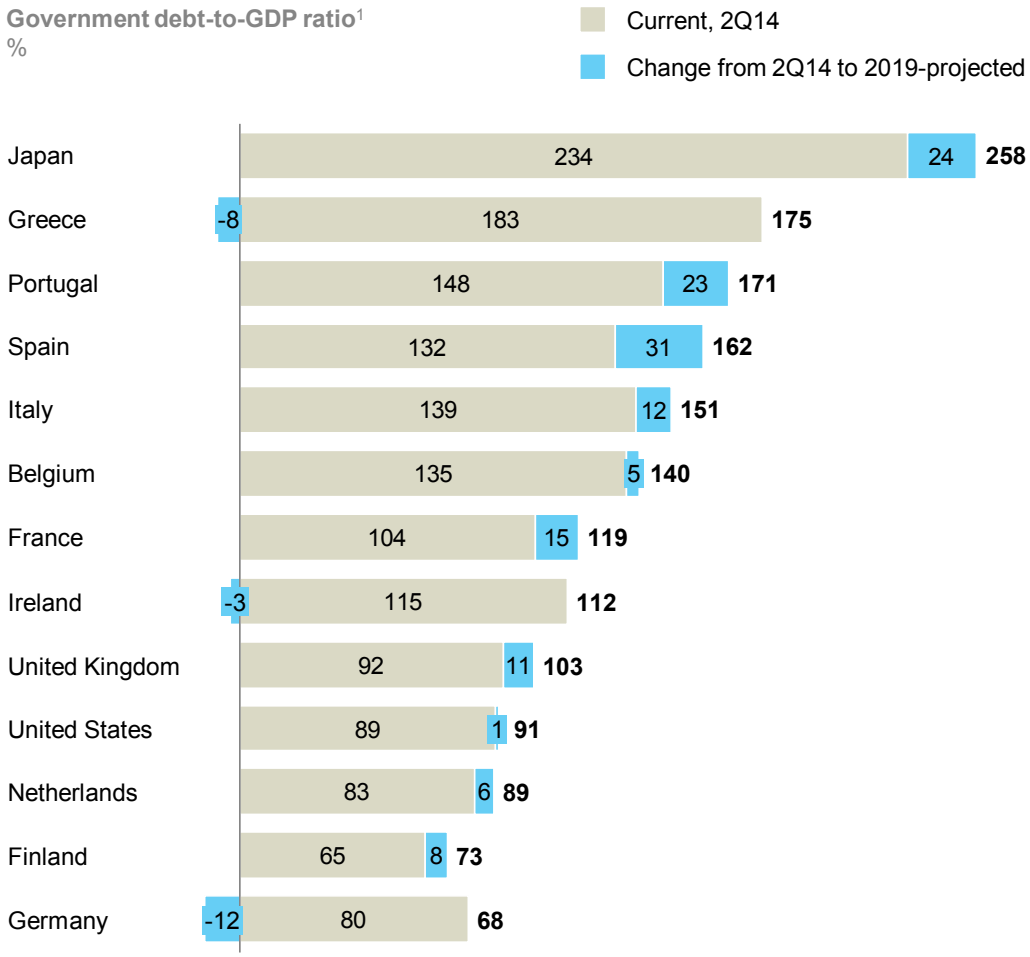
The equation highlights the role of interest rates in addressing government debt. Since 2008, governments around the world have benefited from very low interest rates. So even as government debt has grown, interest payments have risen less. But this situation will be reversed if interest rates begin to rise, potentially accelerating growth in government debt. Taking steps to reduce the debt before this happens is critical.

Greece and Ireland are exceptions to the general trend of growing government debt, for different reasons. Greece will continue to slowly reduce government debt if it retains its primary surplus of 2.7 percent of GDP or more. This has been accomplished with significant reforms and austerity and some restructuring of government debt held by private creditors. Even so, as this report goes to press, Greek voters have favored a party that promises to relax austerity measures. Ireland's reduced government debt ratio is the result of strong projected GDP growth backed by a strong rise in business investment and exports.[22] Consensus estimates are for Ireland's real GDP to grow by 3 percent per year over the next five years.

[22] Ireland is similar to Sweden and Finland as a small, open economy where exports play a crucial role in driving economic growth; Irish exports as a share of GDP stood at 108 percent in 2013.

Exhibit 10

Most advanced economies are expected to have rising public debt, given current projected growth



1 Based on consensus GDP forecast, current inflation, estimates for 2014 primary deficit and effective interest rate.
NOTE: Numbers may not sum due to rounding.

SOURCE: McKinsey Country Debt database; IMF; IHS; EIU; Oxford Economics; OECD; McKinsey Global Growth Model

While history offers many examples of countries that have substantially reduced very high ratios of government debt to GDP, this was accomplished under different circumstances than what countries must deal with today. It also involved considerable political will. After World War II, the United Kingdom had government debt equal to 238 percent of GDP; for the United States, it was 121 percent. These ratios were reduced over the subsequent decades, aided in the United States by two decades of very strong GDP growth and in the United Kingdom by a long period of austerity. More recently, Canada cut its government debt from 91 percent of GDP in 1995 to 51 percent in 2007, aided by strong global growth and commodity exports. Belgium—like Sweden and Finland, a small, export-oriented economy—reduced government debt from 144 percent of GDP in 1998 to 101 percent in 2007 through austerity measures mandated for joining the Eurozone. Today, global economic growth is weak and there are few signs of consensus to pursue austerity that was seen in the United Kingdom after World War II or in Belgium when it joined the Eurozone.

Reducing government debt ratios today will require a broader range of solutions

To start government deleveraging, there are four possible paths: make fiscal adjustments to reduce or eliminate fiscal deficits, accelerate GDP growth through productivity improvements, raise inflation targets, or restructure debt. We also discuss the implications of central bank holdings of government bonds.[23]

Policy makers will need to consider a broader range of actions to stabilize or reduce government debt.

Making fiscal adjustments to repay debt

This approach requires a government to maintain fiscal surpluses that are at least large enough to cover debt service for long periods of time. As noted, Sweden and Finland ran fiscal surpluses for most of a decade to reduce their government debt ratios. But this was possible because these were small, open economies that were able to take advantage of a global economic boom to boost exports, which raised tax receipts.

The environment is very different today, and the size of the adjustments needed by advanced economies is far larger. Using the equation above, we calculate that Spain, for instance, would need to go from a fiscal deficit of 2.3 percent of GDP to a surplus of 2.6 percent of GDP—a shift of nearly 5 percent of GDP. Other countries face similarly large adjustments (Exhibit 11).[24] In addition to Spain, five countries we analyze require a shift in government spending of 2 percentage points of GDP or more.

5%
Fiscal adjustment as a share of GDP required by Spain to start deleveraging

Achieving these adjustments would require tough choices about taxes and spending. Moreover, these adjustments are only what is needed to stabilize debt at current levels and halt its growth. Additional adjustments would be required to reduce government debt ratios to more sustainable levels. In many countries, taxpayers might resist the measures needed to run government surpluses this large for many years, simply to repay future generations or foreign creditors. Moreover, even if this level of fiscal tightening were achieved, it may have the unintended consequence of slowing GDP growth, making a reduction in government debt ratios that much more difficult.

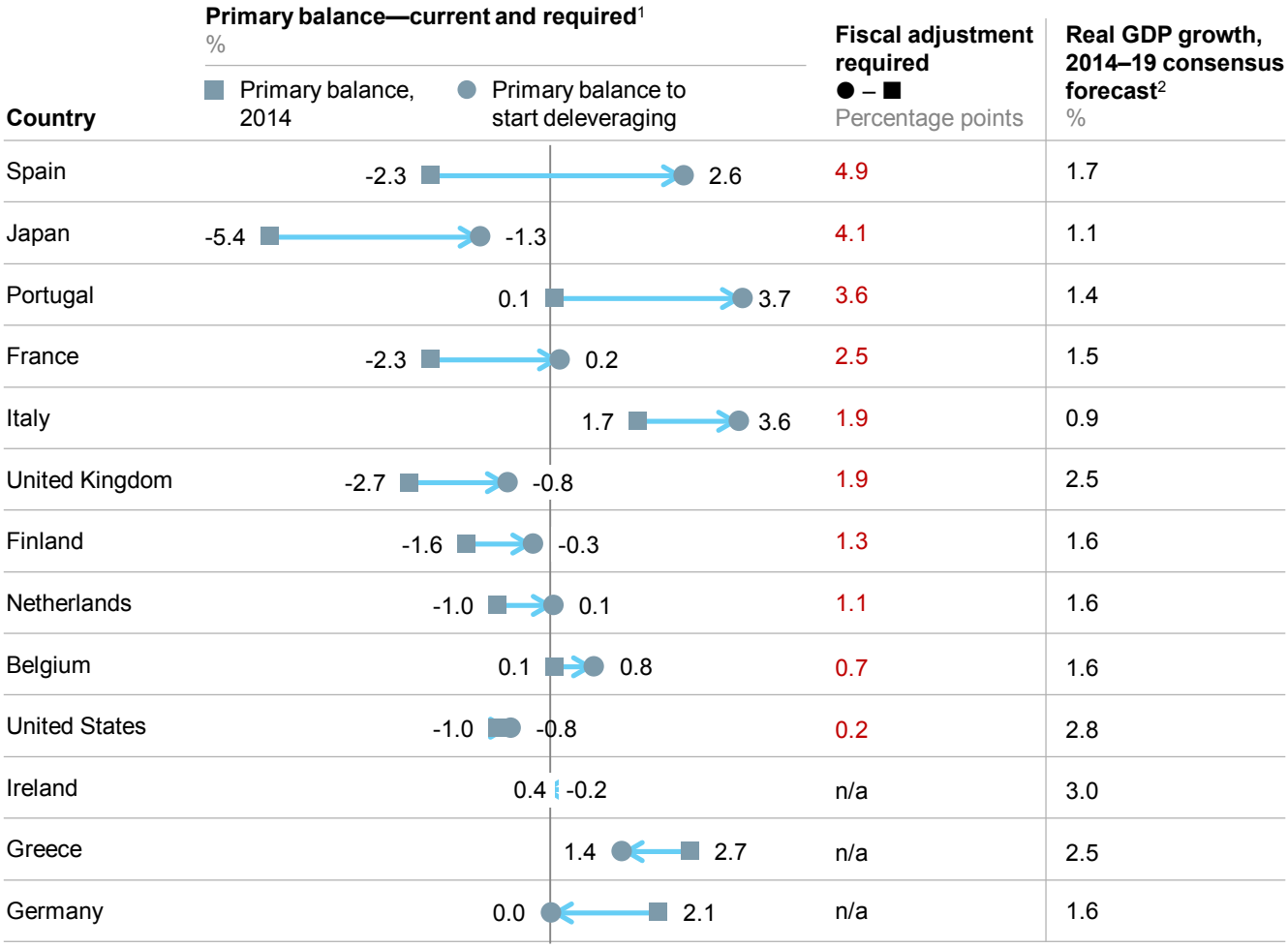
Still, a wider range of options for raising government revenue need to be considered. These include sales of public sector assets, partial or full privatization of state-owned companies, land sales, and one-time taxes, for instance on the super wealthy. All of these actions require considerable political will. But they may be more attractive for reducing government debt than prolonged cuts in government spending that could reduce GDP growth.

[23] Joseph Stiglitz, "The world needs a sovereign debt restructuring mechanism," *Emerging Markets*, December 10, 2014.

[24] The IMF Fiscal Monitor publishes a similar analysis on fiscal adjustment. However, it calculates the adjustment needed to reduce government debt to 60 percent of GDP by 2030. Our calculation instead identifies the minimum fiscal surplus needed to start to reduce the government debt ratio.

Exhibit 11

European economies and Japan require significant fiscal adjustment to start public-sector deleveraging


Primary balance—current and required[1]
%
Primary balance, 2014
Primary balance to start deleveraging
Country
Fiscal adjustment required
● – ■
Percentage points
Real GDP growth, 2014–19 consensus forecast[2]
%
Spain -2.3 2.6 4.9 1.7
Japan -5.4 -1.3 4.1 1.1
Portugal 0.1 3.7 3.6 1.4
France -2.3 0.2 2.5 1.5
Italy 1.7 3.6 1.9 0.9
United Kingdom -2.7 -0.8 1.9 2.5
Finland -1.6 -0.3 1.3 1.6
Netherlands -1.0 0.1 1.1 1.6
Belgium 0.1 0.8 0.7 1.6
United States -1.0 -0.8 0.2 2.8
Ireland 0.4 -0.2 n/a 3.0
Greece 1.4 2.7 n/a 2.5
Germany 0.0 2.1 n/a 1.6

1 Based on consensus GDP forecast, current inflation, 2Q14 government debt-to-GDP level, and estimated 2014 effective interest rate.
2 Average real GDP growth forecast from 2014 to 2019 per IMF, IHS, EIU, Oxford Economics, OECD, and McKinsey Global Growth Model.

SOURCE: McKinsey Country Debt database; IMF; IHS; EIU; Oxford Economics; OECD; McKinsey Global Growth Model; McKinsey Global Institute analysis

Increasing real GDP growth through productivity improvements

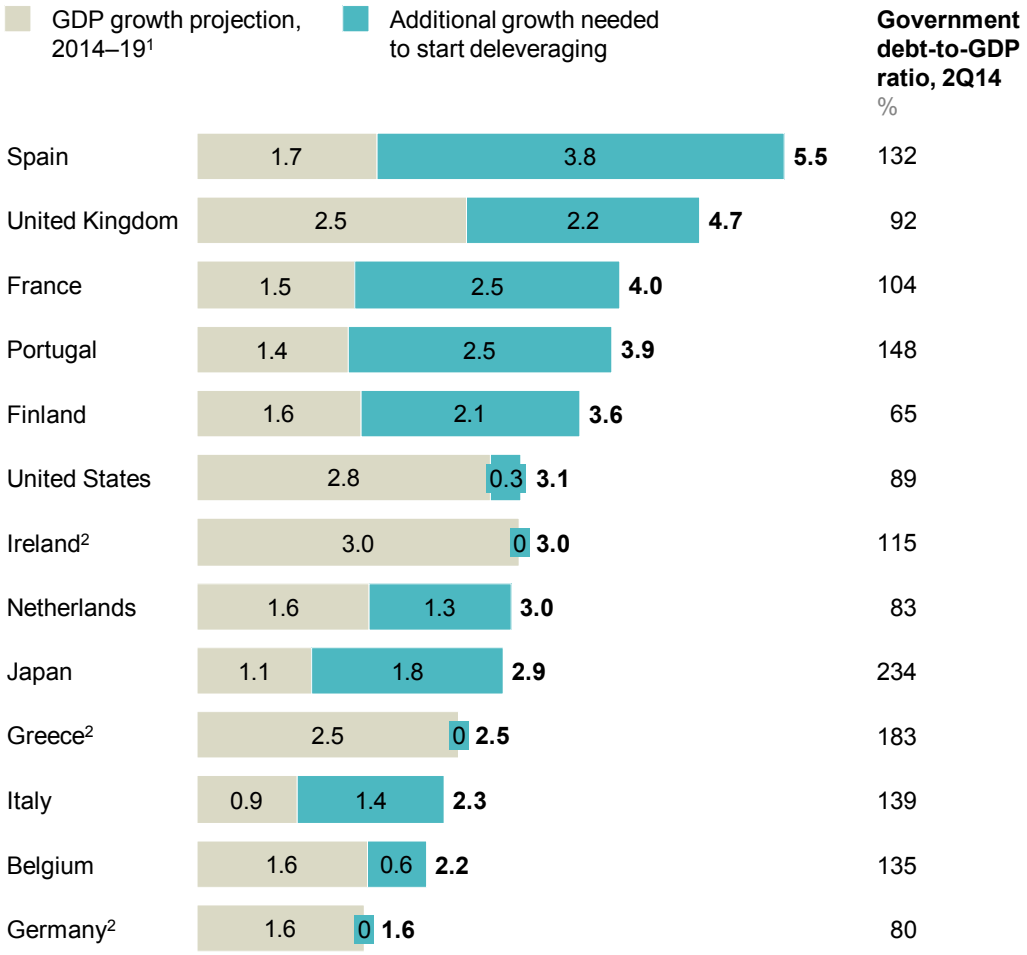
In Sweden and Finland, public-sector deleveraging occurred during a period of robust economic growth after the crisis had subsided and the private sector had deleveraged. Growth was lifted by structural reforms that raised productivity growth, as well as by soaring exports. However, to generate the growth needed to begin reducing government debt ratios in the most indebted nations today would require real GDP growth rates far higher than are currently projected. In our model, GDP in Spain, France, Portugal, the United Kingdom, and Finland would have to grow by two percentage points more than the current forecasts, reaching real growth rates of 3.6 to 5.5 percent a year. The Japanese economy would have to grow almost three times as fast as the consensus outlook—2.9 percent vs. 1.1 (Exhibit 12).

Such growth is highly unlikely in most advanced economies, which face strong economic headwinds. Most heavily indebted advanced economies have aging populations that will act as a drag on GDP growth as labor force growth slows and, in some cases, labor forces shrink. Moreover, high rates of unemployment, particularly among the long-term unemployed, have reduced future potential GDP growth rates. Boosting GDP growth will require dramatic productivity gains in the future, and the structural reforms necessary for productivity gains have proven difficult to enact in many countries. Even if productivity efforts are successful, they are not likely to deliver all the additional growth needed for deleveraging.

Exhibit 12

Real GDP growth would need to accelerate substantially in many countries to start public-sector deleveraging

Real GDP growth rate required to start deleveraging
%


GDP growth projection, 2014–19[1]
Additional growth needed to start deleveraging
Government debt-to-GDP ratio, 2Q14
%
Spain 1.7 3.8 5.5 132
United Kingdom 2.5 2.2 4.7 92
France 1.5 2.5 4.0 104
Portugal 1.4 2.5 3.9 148
Finland 1.6 2.1 3.6 65
United States 2.8 0.3 3.1 89
Ireland[2] 3.0 0 3.0 115
Netherlands 1.6 1.3 3.0 83
Japan 1.1 1.8 2.9 234
Greece[2] 2.5 0 2.5 183
Italy 0.9 1.4 2.3 139
Belgium 1.6 0.6 2.2 135
Germany[2] 1.6 0 1.6 80

1 Average real GDP growth forecast from 2014 to 2019 per IMF, IHS, EIU, Oxford Economics, OECD, and McKinsey Global Growth Model.
2 Based on current GDP forecasts, Ireland, Greece, and Germany do not require any additional growth to start public-sector deleveraging.
NOTE: Numbers may not sum due to rounding.

SOURCE: McKinsey Country Debt database; IMF; IHS; EIU; Oxford Economics; OECD; McKinsey Global Growth Model

Raising inflation to boost nominal GDP growth

Raising inflation rates is another way to increase nominal GDP growth in the denominator in our equation. This is a viable option only for advanced economies where debt is held in the local currency. So far, inflation has remained at very low levels, despite record low interest rates and unconventional monetary policies such as quantitative easing. In recent years, many economists have discussed the limited effectiveness of this standard monetary mechanism in a high debt environment. It can work only if banks are willing to lend. Liquidity, they point out, cannot translate into inflation when demand is depressed, the propensity to save is high, and banks are still deleveraging.[25]

Restructuring sovereign debt

A more painful way to reduce debt is through restructuring. Even though sovereign default is regarded as unthinkable for major economies today, in reality a continuum of debt restructuring actions has emerged over the past ten years, with unilateral default as the extreme form. Today's rich European nations, including England and France, defaulted repeatedly from the 14th to the 18th centuries (France did it eight times). Latin American economies defaulted repeatedly in the 20th century, and Argentina has done it once in the 21st. The most recent sovereign debt restructuring was in 2012 in Greece, which involved write-downs of bonds held by private-sector creditors but not public sector ones.[26] Government debt restructuring comes with significant costs, and when unilateral default has occurred, it has sparked financial crises and deep recessions. Given these costs, this option remains a last resort. However, with the levels of government debt today, the lack of political will for prolonged austerity in many countries, and the inability to restart economic growth, some countries may have no option but to consider new mechanisms for restructuring sovereign debt. The IMF has proposed reforms to enable sovereign debt restructuring to proceed more efficiently.[27]

Focusing on net debt provides a very different picture of government leverage in some countries. In Japan, gross government debt is 234 percent of GDP and net debt is 94 percent.

Rethinking debt held by central banks

Another option is to rethink how central bank holdings of government debt are treated in any analysis of debt sustainability. Today, the central banks of the United States, the United Kingdom, and Japan hold 16, 24, and 22 percent, respectively, of government bonds outstanding in their countries. These holdings are largely the result of the quantitative easing programs that were employed to stimulate growth after the recession. While the United States and the United Kingdom have announced an end to quantitative easing, the Bank of Japan has raised the maximum amount of government bonds it is allowed to buy each year to ¥80 trillion from ¥50 trillion (to $667 billion from $417 billion). Our estimates suggest that if this program remains in effect for the next three years, the Bank of Japan would hold close to 40 percent of all government bonds outstanding. In January 2015, the European Central

[25] This situation is called a liquidity trap, in which injections of cash into the private banking system by central banks fail to boost borrowing and hence make monetary policy ineffective. See Paul R. Krugman, "It's baaack: Japan's slump and the return of the liquidity trap," *Brookings Papers on Economic Activity*, volume 29, issue 2, 1998.

[26] Carmen M. Reinhart and Kenneth S. Rogoff, *This time is different: Eight centuries of financial folly*, Princeton University Press, 2009.

[27] IMF, *Strengthening the contractual framework to address collective action problems in sovereign debt restructuring*, staff paper, September 2, 2014.

Bank announced a new program to purchase up to €720 billion of sovereign bonds annually ($840 billion).

But does government debt owned by the central bank (or any other government agency) pose the same risk as bonds owned by private creditors? In a sense, this debt is merely an accounting entry, representing a claim by one part of the government on another. Moreover, all interest payments on this debt typically are remitted to the national treasury, so the government is effectively paying itself. In assessing the risk and sustainability of government debt, it is the size of net public debt (excluding holdings by government agencies) rather than the gross debt figures cited in this report and elsewhere that really matters. Focusing on net debt provides a very different picture of government leverage in some countries. The IMF reports net debt figures for governments, excluding debt held by government agencies, but not central bank holdings of bonds.[28] If we also exclude bonds owned by central banks, the government debt-to-GDP ratio in the United States declines from a gross level of 89 percent to just 67 percent, and falls from 92 percent to 63 percent in the United Kingdom, and from 234 percent to 94 percent in Japan.

Whether central banks could cancel their government debt holdings is unclear. Any write-down in their value would wipe out the central bank's capital. While this would have no real economic consequence, it would likely create financial market turmoil.[29] Another option that has been suggested is to replace the government debt on the central bank's balance sheet with a zero-coupon perpetual bond.[30] Although the market value of such a bond would be zero, central banks are not required to mark their assets to market. Still, any such move could create backlash in the markets and, in some countries, by policy makers. Therefore, a simpler but equivalent measure would be for central banks to simply hold the debt in perpetuity and for the broader public to shift its focus to net debt rather than gross debt.

[28] In the IMF definition of net debt, the bonds and other debt liabilities owned by government agencies such as pension programs are excluded. These agencies may have liabilities, which raises the possibility that they may sell the bonds or seek repayment of the debt in the future. Central banks, in contrast, have no liabilities. Therefore, an alternative definition of net government debt might exclude central bank holdings of government bonds but not debt held by government agencies such as retirement programs.

[29] Central banks cannot become insolvent, given that they can print money. Economists have long recognized this. As a consequence, Ben Bernanke noted in a speech prior to becoming the Federal Reserve chairman that the "balance sheet of the central bank should be of marginal relevance at best to the determination of monetary policy." See Ben Bernanke, "Some thoughts on monetary policy in Japan," remarks to the Japan Society of Monetary Economics in Tokyo, May 31, 2003.

[30] Adair Turner, "Printing money to fund deficit is the fastest way to raise rates," *Financial Times*, November 10, 2014.

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2. HOUSEHOLD DEBT: LESSONS NOT LEARNED

Unsustainable household debt in some of the world's largest economies, notably in the United States, was at the core of the 2008 financial crisis. Household debt not only touched off the crisis, but it also made the subsequent recession more severe and long lasting, as households cut consumption and struggled to repay debt. Between 2000 and 2007, household debt relative to income rose by 35 percentage points in the United States, reaching 125 percent of disposable income. Even more problematic was the poor quality of loans that were made and subsequently securitized, including subprime mortgages. In the United Kingdom, household debt rose by 51 percentage points, to 150 percent of income.[31]

One of the surprising trends since then is how limited deleveraging in the household sector has been. Household debt levels have fallen mainly in the countries that were affected most by the crisis. Ireland and United States stand out, with household debt as a percent of income declining by 33 percentage points in Ireland and by 26 points in the United States. Portugal, Spain, the United Kingdom, and a few other countries have experienced smaller declines. In most advanced economies, household debt has continued to grow and in some cases has reached much higher levels than the pre-crisis peaks in the United States and the United Kingdom. In developing economies, household debt is generally at much lower levels, but it is growing rapidly. In Thailand and Malaysia, household leverage exceeds US levels. The question today is whether countries with high levels of household debt are at risk of a crisis, or whether high debt levels can be sustained.

33
Percentage point reduction in debt-to-income ratio of Irish households since 2007

In this chapter, we assess the growth and sustainability of household debt in our sample of 47 countries. We show that mortgages account for most of the growth in household debt across countries and that rising house prices are determined largely by land prices and the availability of credit. Across countries, urbanization patterns partly explain differences in household debt levels: we find that countries with one megacity or a few large urban agglomerations, rather than multiple large cities, have higher real estate prices in the central city and therefore higher levels of household debt. We look at levels of household debt, growth in debt, and debt service ratios to make an initial assessment of household debt sustainability and find that seven countries today have household debt that may be unsustainable: the Netherlands, South Korea, Canada, Sweden, Australia, Malaysia, and Thailand.

Since household deleveraging is rare and household debt in many countries continues to grow, we believe that new approaches are needed. First, innovations are called for in the contractual forms and risk-sharing features of household debt instruments, especially mortgages. Additional policy tools are needed to cool overheated housing markets before crises occur, and new mechanisms are needed to resolve household debt in cases of default. We discuss some options in this chapter and offer a fuller set of recommendations in Chapter 5.

[31] In this chapter, we focus on debt relative to disposable income as the main metric of household leverage. Some analysts argue that debt relative to assets is a better measure. However, as we saw after 2007, asset prices can drop significantly during a recession or financial crisis, making moderate debt-to-asset ratios suddenly become very large. Income is a more stable variable, and thus we believe it is a more reliable indicator of debt sustainability.

Household leverage has declined in countries hit hardest by the crisis but continues to grow in many others

Prior to the financial crisis, debt grew at an accelerated rate in nearly all advanced economies and in most countries growth was driven mostly by household debt, rather than debt of corporations.[32] But since the crisis, household deleveraging has been limited. In the United States, the ratio of household debt to disposable income has declined by 26 percentage points since the 2007 peak—driven by a combination of mortgage defaults, a sharp decline in new lending, and continued repayments on existing debt.[33] A feature of the US mortgage system is the non-recourse mortgage, which prevents creditors from seizing other assets or income from borrowers in the event of default. While non-recourse loans have resulted in a wave of painful foreclosures for borrowers and losses for lenders, they enable rapid resolution of debt for borrowers who can no longer afford to service their debt. Mortgage defaults rose to a peak of about 9 percent of all mortgages in 2010, up from less than 1 percent in the years prior to the crisis. Foreclosures of non-recourse mortgages help explain the steep decline in US mortgage debt since the crisis, by $1.2 trillion from peak to trough.

Household debt relative to income has continued to grow rapidly in some countries and may be unsustainable in seven countries.

Irish households have reduced their debt even more than households in the United States—by 33 percentage points of disposable income. As in the United States, net new lending to households has been negative since the crisis began. Leading up to the crisis, the share of mortgage accounts in arrears rose dramatically, from less than 2 percent to more than 12 percent at the peak. However, in contrast to the United States, Ireland has used a large-scale mortgage restructuring program for households that are unable to meet their payments. More than 102,000 mortgages had been restructured by June 2014—equivalent to 13 percent of all mortgages.[34] Restructurings involve a variety of mechanisms, including short-term, interest-only payment plans; temporary payment deferral; extending mortgage maturities; and arrears capitalization. Unlike in the United States, where households lost their homes through foreclosure, the Irish approach has provided financial relief without foreclosure. However, it should be noted that many restructurings in Ireland are short-term only.

Household deleveraging has been more modest in other countries. Household debt relative to income has declined by 17 percentage points in the United Kingdom and by 13 points in Spain. Modest household deleveraging (by single-digit percentage points) has occurred in Norway, while leverage has increased marginally (by a couple of percentage points) in Denmark since 2007. However, in most other advanced economies, household debt relative to income has increased significantly since 2007 (Exhibit 13).[35]

[32] *Debt and deleveraging: The global credit bubble and its economic consequences*, McKinsey Global Institute, January 2010.

[33] For household debt, we use the metric of debt divided by disposable income, rather than GDP, to measure leverage. This is because the household income share of GDP varies across countries, and the tax rate varies even more. Disposable income is therefore a more accurate measure of the income stream available to service debt. Later in this chapter, we also look at debt service ratios and other metrics for debt sustainability.

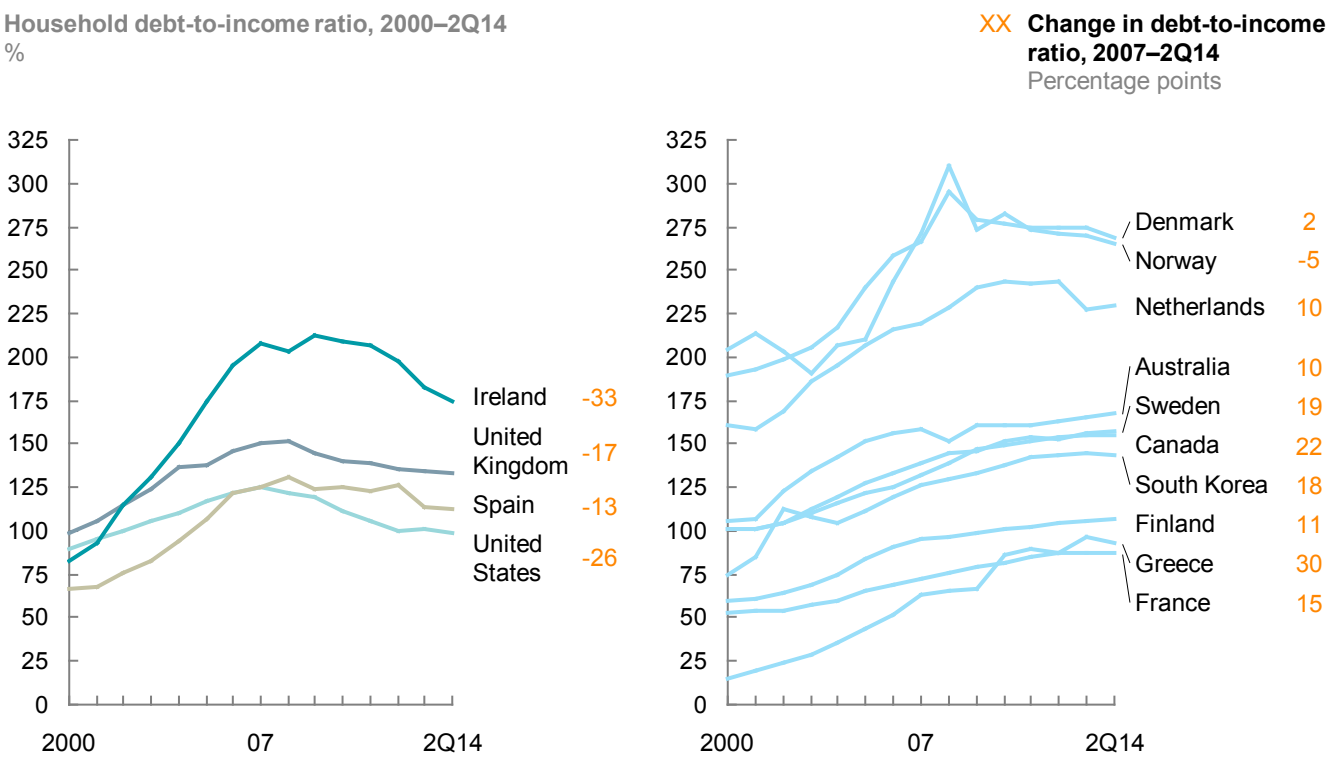
[34] Central Bank of Ireland statistical release, *Residential mortgage arrears and repossessions statistics: Q2 2014*, September 2, 2014.

[35] The household debt figure for Canada includes the debt of unincorporated businesses, which is counted as corporate debt for all other economies in our database. This inflates the household debt-to-income ratio for Canada relative to other countries, although we cannot say by how much.

Japan and Germany have followed a different pattern than other advanced economies. In neither country did household leverage grow between 2000 and 2007; in both, debt-to-income ratios have fallen continuously since 2000. In Germany, the nominal amount of household debt has remained roughly stable while disposable income has grown slightly. German household debt has been limited by a relatively low rate of homeownership (although homeownership did increase in Germany in the 2000s). In Japan, the levels of both household debt and income have declined since 2000, a result of the slow-growth economy, an aging population, and declining property markets.

Exhibit 13

Households in the hard-hit countries have deleveraged, but household debt has continued to grow in most advanced economies

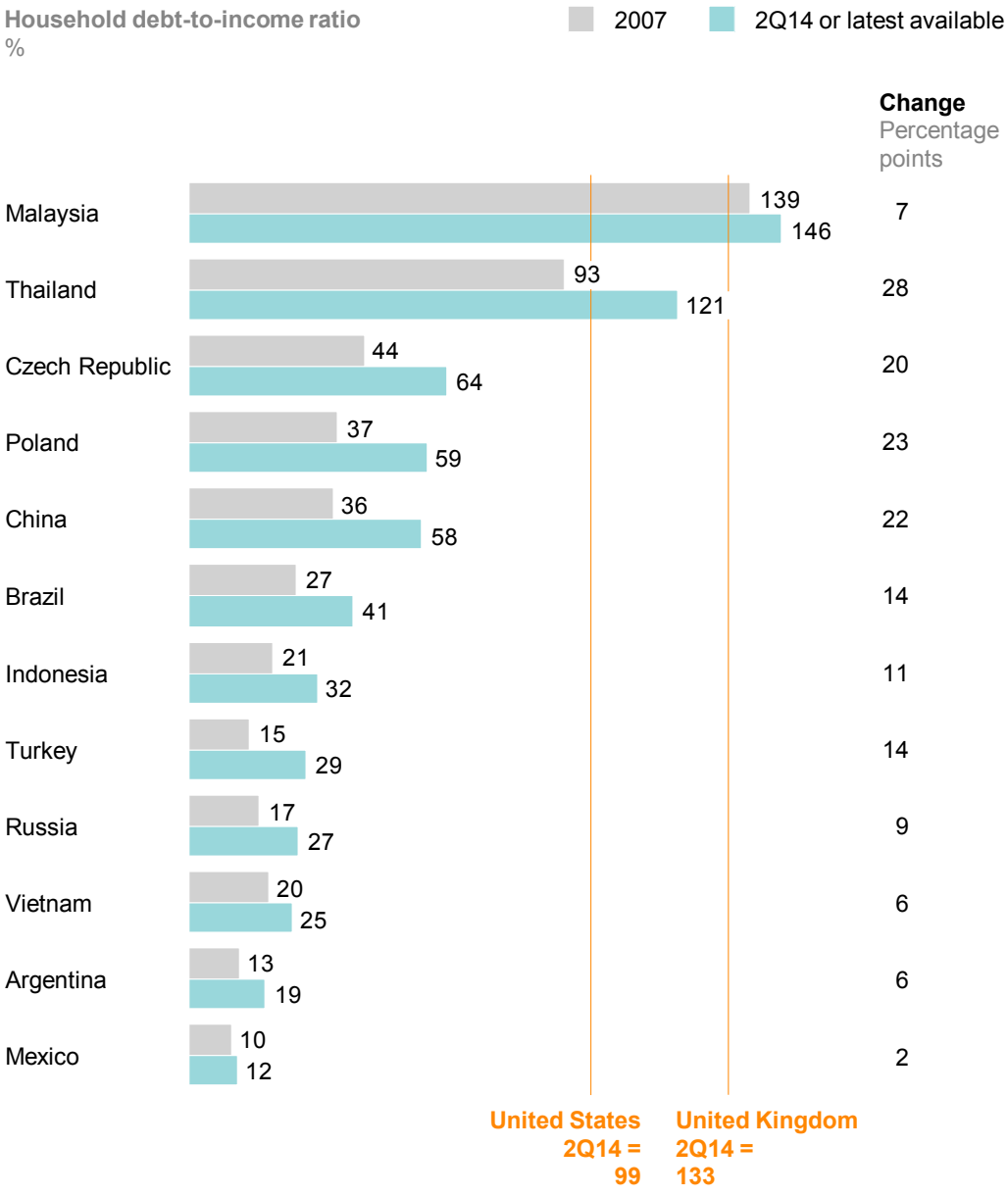


SOURCE: Haver Analytics; national central banks; McKinsey Global Institute analysis

In most developing economies, household debt relative to income has grown rapidly, particularly where urbanization is raising property values and access to credit is expanding. Debt relative to household income has risen by 13 percentage points on average since 2007 in developing economies. But the debt level in developing economies is still very low, at 42 percent of income, compared with an average of 110 percent in advanced economies. Chinese household debt has quadrupled since 2007, rising by $2.8 trillion, but this debt is still only 58 percent of disposable income, only slightly more than half of the current US level. Notable exceptions among developing economies are Malaysia, whose household debt ratio is 146 percent of income, and Thailand, at 121 percent. These debt ratios are similar to those in the United States and the United Kingdom (Exhibit 14). Given the lower income levels in those countries, this raises questions about sustainability of household debt.

Exhibit 14

Household debt-to-income ratios have grown significantly in developing economies—Thailand and Malaysia are now above the US level



SOURCE: Haver Analytics; national central banks; McKinsey Global Institute analysis

Real estate and land prices are the major drivers of household debt over time

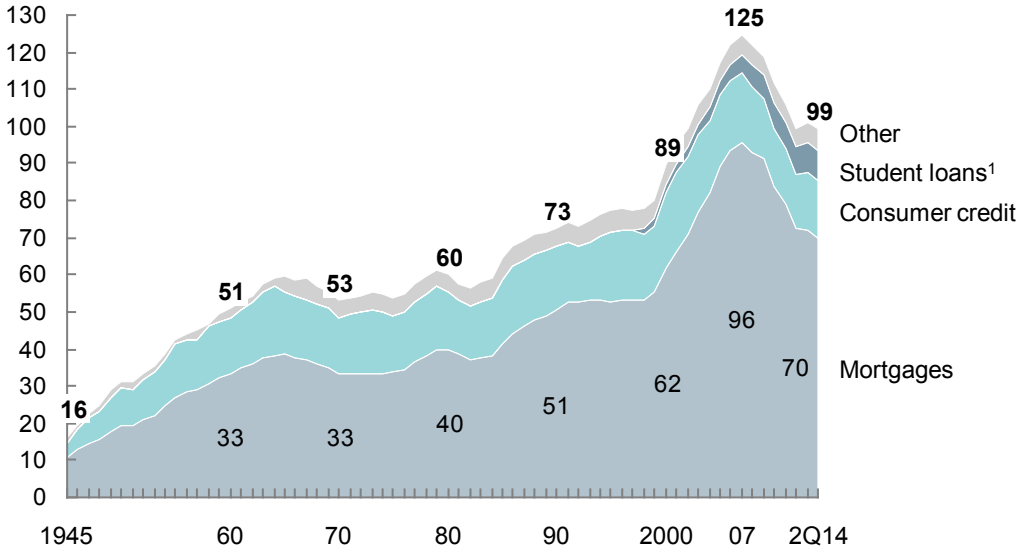
What is causing the continuous rise of household debt around the world? Rising mortgage debt is the main cause, as documented in research by Jordà et al.[36] In the United States, for example, household debt grew from just 16 percent of disposable income in 1945 to 125 percent at the peak in 2007, with mortgage debt accounting for 78 percent of the growth (Exhibit 15). Mortgage debt represents the majority of household debt growth in other countries as well. Our data show that mortgages now account for 74 percent of household debt in advanced economies and 43 percent of household debt in developing economies (where household loans also include borrowing for small family businesses).

[36] Òscar Jordà, Moritz Schularick, and Alan M. Taylor, *The great mortgaging: Housing finance, crises, and business cycles*, Federal Reserve Bank of San Francisco working paper number 2014–23, September 2014.

Exhibit 15

US household debt has increased steadily over time, due to growth in mortgages

Household debt-to-income ratio
%



1 Student loan data not available before 1998.

SOURCE: US Federal Reserve; US Office of Management and Budget; McKinsey Global Institute analysis

74%
Share of mortgages in household debt of advanced economies

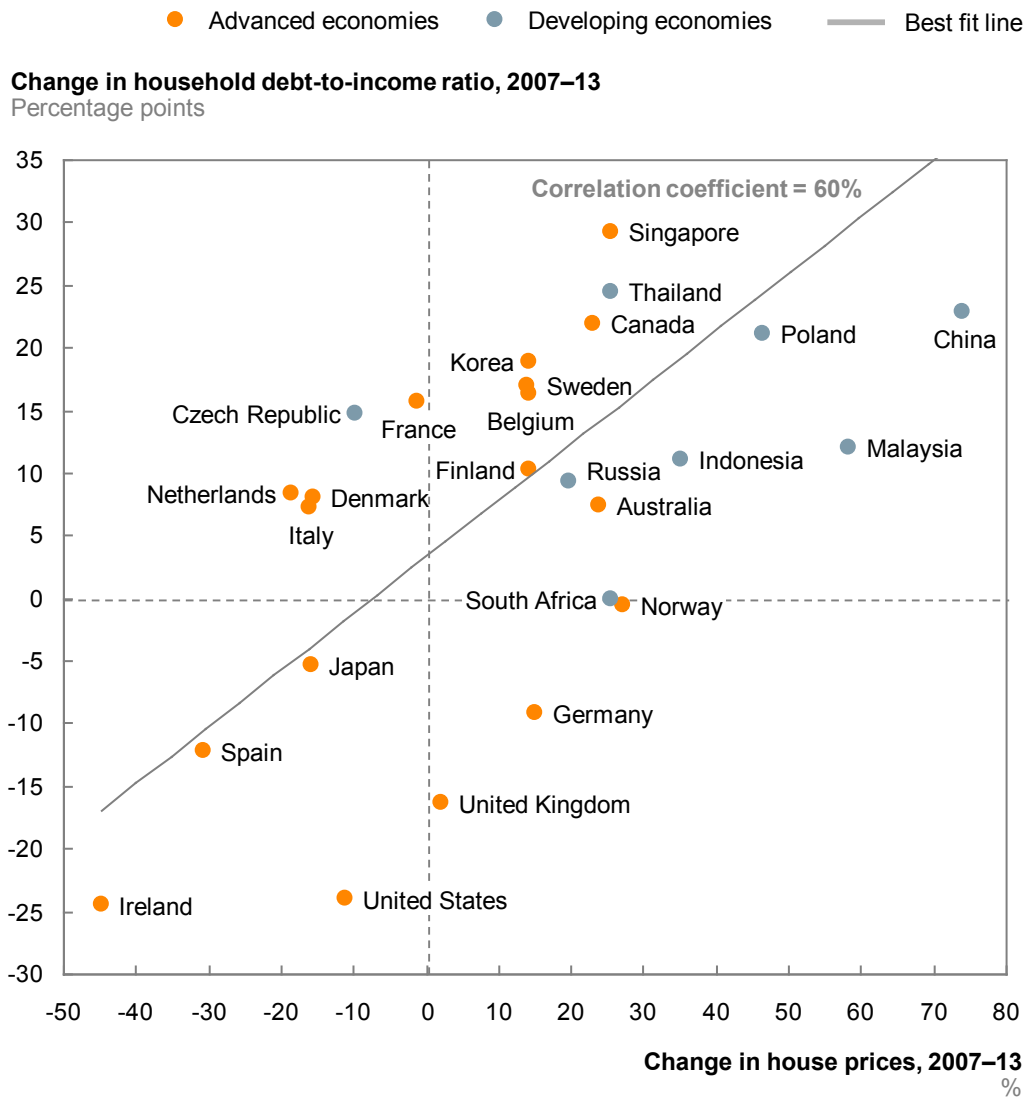
The steady increase of mortgage debt reflects four factors: rising homeownership rates, real estate prices, tax incentives that favor debt, and interest rates. Household debt, not surprisingly, is lower in countries where more people rent rather than buy their homes. Homeownership rates vary significantly across countries, from a low of 53 percent in Germany to a high of 90 percent in Singapore. However, homeownership rates do not change substantially over time and so cannot explain the significant growth of household debt in many countries prior to the crisis. In the United States, for instance, the rate of homeownership rose from 67.5 percent in 2000 to 69 percent at the peak of the market in early 2007, while household debt rose from 89 percent of disposable income to 125 percent. In the United Kingdom, the homeownership rate rose by 1.3 percentage points from 2001 to 2007, while the household debt ratio rose from 106 percent of income to 150 percent.

Rising real estate prices, which were driven higher by readily available mortgages for buyers, explain most of the growth in household debt prior to the crisis. From 2000 to 2007, housing prices soared in many countries, rising by 138 percent in Spain, 108 percent in Ireland, 98 percent in the United Kingdom, 89 percent in Canada, 78 percent in Denmark, and 55 percent in the United States.[37] As house prices increase, households must take out larger loans to buy them. When values are rising, banks are willing to lend more against collateral that appears to be gaining in value, which in turn creates more demand in the real estate market, driving prices higher still. The correlation between growth in real estate prices and household debt is seen across countries (Exhibit 16).

[37] For a detailed analysis of the housing bubble in the United States, see Atif Mian and Amir Sufi, *House of debt: How they (and you) caused the Great Recession, and how we can prevent it from happening again*, University of Chicago Press, 2014.

Exhibit 16

Across countries, rising house prices are correlated with increases in household debt-to-income ratios

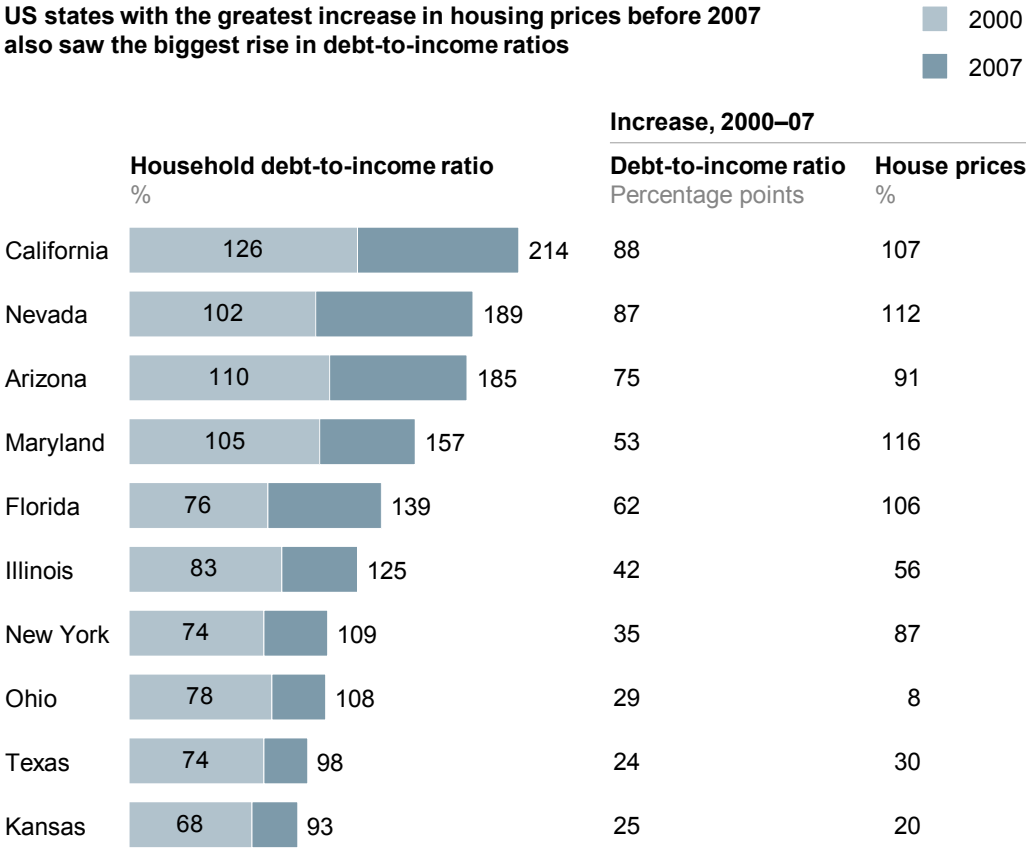


SOURCE: National sources; Haver Analytics; Federal Reserve Bank of Dallas; McKinsey Global Institute analysis

The relationship between rising house prices and rising household debt was also apparent across US states in the years prior to the crisis. States with the fastest increases in house prices from 2000 to 2007—California, Nevada, Arizona, and Florida—also had the greatest growth in debt as a share of income (Exhibit 17). The correlation also works in reverse: since the crisis, states with the largest house price declines have also experienced the largest reductions in household debt-to-income ratios.

Exhibit 17

US states with the greatest increase in housing prices before 2007 also saw the biggest rise in debt-to-income ratios



1 Household debt balances by state are estimated by the Federal Reserve Bank of New York based on the population with a credit report. We estimate household debt to disposable income by state using additional data from the US Census Bureau.

SOURCE: FRBNY Consumer Credit Panel; US Census; BEA; Moody's Analytics; McKinsey Global Institute analysis

Land is a key component of house prices. When land supply is restricted, more demand leads to higher prices. According to one study, 80 percent of the increase in housing prices in a range of countries between 1950 and 2012 can be explained by the rise of land prices.[38] Across US cities, we find a 91 percent correlation between land price changes and house price changes.

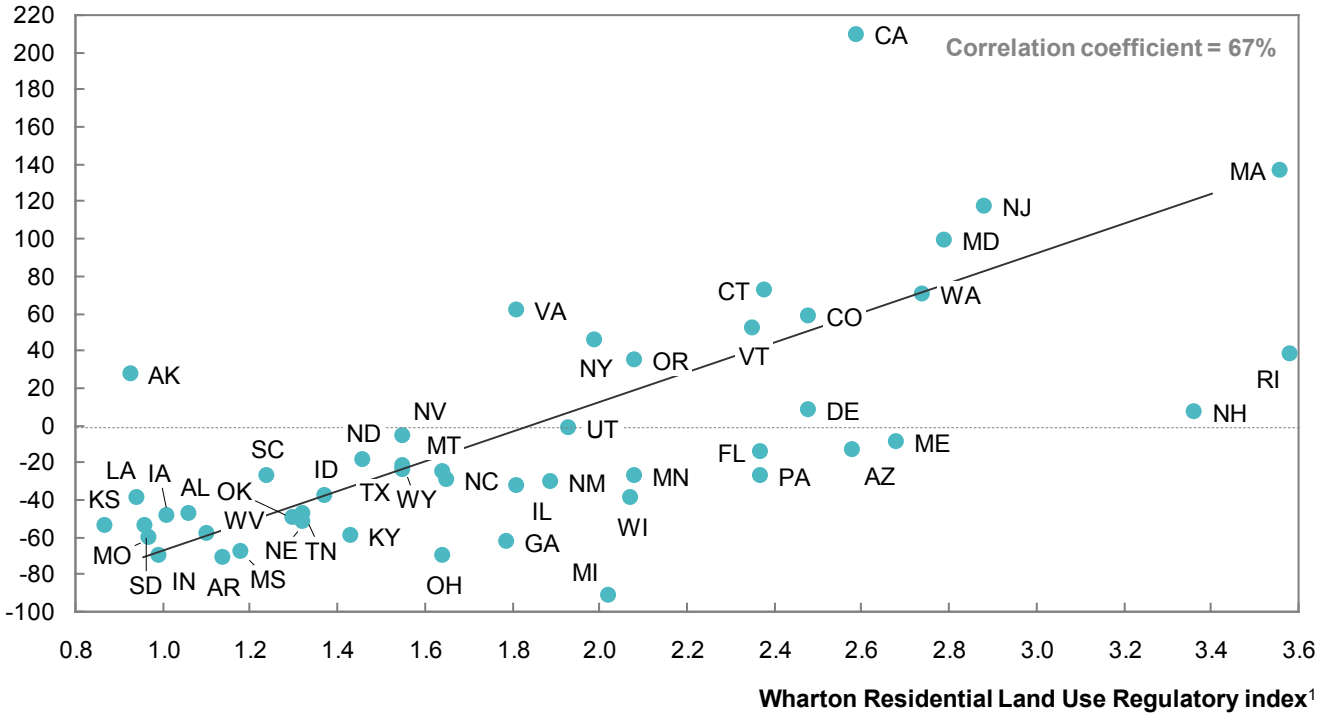
Land prices are determined by scarcity. The greater the geographic or regulatory constraints on home building, the higher the land and house prices are likely to go. In the United States, for example, the city of Seattle is hemmed in by water and mountains, limiting the amount of land available for housing. In San Francisco, there is an acute shortage of buildable land, due to physical constraints and regulations that limit development. San Jose, Los Angeles, and San Diego in California have strict regulations that limit development—and house prices in these cities are well above the US national average. Meanwhile, housing prices are much lower in cities such as Dallas and Houston in Texas, which lie on flat terrain, with ample land on which to build (Exhibit 18).

[38] Katharina Knoll, Moritz Schularick, and Thomas Steger, *No price like home: Global house prices, 1870–2012*, Centre for Economic Policy Research discussion paper number 10166, September 2014.

Exhibit 18

US states where regulatory restrictions limit land development have higher house prices

Difference from average national house price, 2013
$ thousand



1 Measures the stringency of local land-use regulation across 11 dimensions covering executive, legislative, and court activity spanning 2,600 communities nationwide. We have rebased the index to avoid negative numbers.
NOTE: Hawaii has been excluded as an outlier.

SOURCE: Gyourko, Saiz, and Summers (2007); National Association of Realtors; US Census; McKinsey Global Institute analysis

Beyond land and housing prices, the level of mortgage debt that households take on is determined by the type of mortgages that are used in an economy and national tax policies. For example, in high-tax countries, such as the Netherlands and Denmark, the ability to deduct mortgage interest from taxable income creates a strong incentive for high-income households to take on more mortgage debt as real estate prices rise. In the Netherlands, not only is mortgage interest deductible, but many households also use deferred, interest-only loans. Borrowers pay only the interest, without ever paying down the principal, but they are required to set up a corresponding savings account tied to their mortgages. The United States also has mortgage interest deductibility, with some limitations, creating an incentive for households to use debt to purchase housing even if they could buy properties with cash. In Germany, by contrast, there is no tax incentive for using debt, and households typically pay off mortgages as soon as they can.

Finally, interest rates clearly influence the level of household debt by determining monthly debt service payments. Over the past 30 years, real interest rates have declined in advanced economies, and central bank monetary policy in the years since the crisis has pushed rates even lower. Low interest rates have enabled households to borrow more, since debt service payments are more modest. However, in countries where many households have variable-rate mortgages, such as the United Kingdom (and more recently Denmark), households are exposed to interest rate risk. When rates rise and monthly debt service charges are adjusted upward, some households may find they cannot afford their mortgages. This occurred in the United States prior to 2007, when households took out variable-rate mortgages with low "teaser rates," but had trouble keeping up after a few years when the teaser rates expired.

Urbanization patterns influence housing prices and the level of household debt

Since real estate prices are a key determinant of the level of household debt, urbanization policies play a role as well. We find that in countries where a large share of the population flocks to a single center of economic activity or to a handful of megacities housing prices are higher than in countries where economic activity is more distributed.

To study this relationship, we look at the number of metropolitan areas with greater than three million people within an economy. Because city boundaries are often quite narrow, we look at the larger "urban agglomeration" that includes the outlying areas. We define the urban concentration of a country as the average size of its urban agglomerations expressed as a percentage of the total national population. The results, displayed in Exhibit 19, confirm that countries with higher urban concentrations also have higher real estate prices and higher levels of household debt. Singapore and Hong Kong are two extremes, in which the entire population lives in one urban agglomeration—and both have among the highest real estate prices per square meter in the world.[39] The Netherlands, the United Kingdom, France, and Canada are other examples of countries with high urban concentration, high urban real estate prices (in Amsterdam, London, Paris, and Toronto, respectively), and high levels of household debt.

Exhibit 19

Countries with higher urban concentration have higher house prices and household debt

Country	Urban concentration index[1]	Real estate price in largest city by GDP, 2012 $ per square meter, purchasing power parity adjusted	Debt-to-income ratio, 2013 %
Singapore	100.0	10,345	169
Austria	44.7	3,110	85
Netherlands	43.1	3,907	228
United Kingdom	21.9	6,728	134
Malaysia	19.9	2,224	151
Australia	19.6	2,690	166
Japan	14.0	6,099	103
Canada	13.8	4,020	155
South Korea	13.5	4,752	145
Thailand	12.3	4,044	117
Spain	12.2	3,251	113
France	10.2	6,111	88
South Africa	9.3	2,065	52
Mexico	8.5	2,172	12
Italy	8.5	4,220	62
Turkey	8.4	2,772	29
Germany	6.1	2,871	84
Brazil	3.4	2,152	41
Nigeria	3.1	1,046	21
Indonesia	2.6	1,095	32

1 Defined as average population per large city (cities with population over 3 million) expressed as percent of total country population.

SOURCE: MGI Cityscope database; McKinsey Global Institute analysis

[39] We express real estate prices in purchasing power parity terms to ensure comparability across countries.

In contrast, countries with multiple large cities and a more dispersed urban population have lower real estate prices and less household debt. Germany, for example, has seven urban agglomerations with more than three million people: Berlin, Hamburg, Munich, Cologne, Frankfurt, Stuttgart, and Mannheim. The United Kingdom has just one: London. We observe that Germany has much lower real estate prices (in purchasing power parity terms) than the United Kingdom. The same pattern holds in developing economies. Indonesia has five urban agglomerations, while Vietnam has two and the Philippines only one. We find that Indonesia's real estate prices per square meter are the lowest, while Vietnam's are higher and the Philippines' are the highest.

Countries with multiple large cities and a more dispersed urban population have lower real estate prices and less household debt.

There are, of course, benefits to having large urban agglomerations, including concentrations of high-paying industries such as finance, which attract high-skill workers who can pay for expensive housing. A similar effect is seen in industry clusters—a concentration of industry across a region. Research on economic clusters shows that companies in a cluster grow faster and are more profitable than those outside of a cluster. This is because the cluster attracts and develops specialized talent, suppliers, and ancillary industries. Clusters also breed innovation.

Still, policy makers in all countries need to pay attention to the unintended consequences of concentration in megacities. In those places, they will need to monitor the potential buildup of unsustainable debt even more closely. Developing economies may want to keep this analysis in mind as they face choices about whether the country develops one or more megacities or encourages growth in a larger number of urban centers. This decision will influence the expected level of household debt and raise or lower the probability of a financial crisis.

How high household debt can harm the economy

In the years since the 2008 financial crisis, a great deal of research has been conducted to establish the link between household debt, financial crises, and the severity of recessions. This includes work by Atif Mian of Princeton and Amir Sufi of the University of Chicago; Reuven Glick and Kevin J. Lansing of the Federal Reserve Bank of San Francisco; and Òscar Jordà of the Federal Reserve Bank of San Francisco, Moritz Schularick of the University of Bonn, and Alan M. Taylor at the University of California, Davis.[40] Their work has demonstrated a strong connection between the level of household indebtedness and the magnitude of the decline in consumption during a recession or financial crisis.[41]

The rise and fall of household debt affect the magnitude of a recession. In the years prior to the crisis, when credit was flowing and asset prices were rising, economic growth appeared robust, but it was artificially inflated by debt-fueled consumption. Then, after the crisis hit

[40] Ibid. Atif Mian and Amir Sufi, *House of debt*, 2014; Reuven Glick and Kevin J. Lansing, "Global household leverage, house prices, and consumption," *FRBSF Economic Letter*, Federal Reserve Bank of San Francisco, January 11, 2010; Òscar Jordà, Moritz Schularick, and Alan M. Taylor, *The great mortgaging: Housing finance, crises, and business cycles*, Federal Reserve Bank of San Francisco working paper number 2014–23, September 2014.

[41] See, for example, "Dealing with household debt," in *World economic outlook: Growth resuming, dangers remain*, International Monetary Fund, April 2012; Atif Mian and Amir Sufi, *House of debt: How they (and you) caused the Great Recession, and how we can prevent it from happening again*, University of Chicago Press, 2014; and Reuven Glick and Kevin J. Lansing, "Global household leverage, house prices, and consumption," *FRBSF Economic Letter*, Federal Reserve Bank of San Francisco, January 2010.

and credit dried up, the decline in consumption was especially sharp as households could no longer borrow and had to make payments on previous debts, often for homes in which their equity has been wiped out.

This dynamic is seen clearly across US states. The states with the greatest increase in household debt-to-income ratios from 2000 to 2007—California and Nevada—also had the largest declines in consumption from 2008 to 2009 (4.1 percent and 4.6 percent, respectively). This compares with an overall national decline in consumption of 1.6 percent. A similar pattern can be seen across countries: the largest increases in household debt-to-income ratios occurred in Ireland (125 percentage points) and Spain (59 points), which also had the largest drops in consumption from 2008 to 2009 (12.9 percent in Ireland and 4.6 percent in Spain).

Reduced consumption after a financial crisis causes especially severe and prolonged recessions. In the United States, the five states with the largest increases in household debt ratios—California, Nevada, Arizona, Florida, and New Jersey—experienced an average 5.6 percent decline in GDP growth rates from 2007 to 2013. In comparison, in the five states with the least growth in household debt (Kansas, Louisiana, Arkansas, Oklahoma, and West Virginia), GDP declined by an average of 2.5 percent.

Just as rising house prices and larger mortgages can create an upward spiral, falling prices trigger a dangerous downward spiral. Compared with other households, highly leveraged ones are more sensitive to income shocks as a result of job losses, costly health problems, or increases in debt servicing costs. When highly indebted households run into trouble, they cut back on consumption, which contributes to the severity of the recession. Eventually, many overburdened households in the United States defaulted and lenders foreclosed, which created a downward spiral in housing prices in the surrounding areas. According to one study, a single foreclosure lowers the price of nearby properties by 1 percent; when foreclosures come in waves, the effect on nearby homes can be much harsher, with prices falling 30 percent.[42] This can reduce the value of nearby properties to below the level of their mortgages. During the depths of the recession, nearly one-quarter of US mortgages were "underwater," meaning borrowers had negative equity in their homes. Some of those homeowners chose a "strategic default" and walked away from their debts because their properties were not worth keeping.[43] This created further downward pressure on housing prices and additional losses in the financial system.

Therefore, monitoring the sustainability of household debt is an imperative for policy makers. Today, in countries where household debt ratios exceed the levels seen in the crisis countries, the question of assessing sustainability is especially important.

Household debt sustainability depends on the creditworthiness of individual borrowers

269%
Denmark's household debt-to-income ratio in Q2 2014

Whether a particular level of household debt is sustainable depends on how debt is distributed across households. Looking at aggregated measures of household debt-to-income ratios, or debt-to-assets ratios, is a start. But what matters most is which households have taken on the most debt and their ability to repay it. This requires good microeconomic data on household finances, which many countries do not compile.

[42] John Y. Campbell, Stefano Giglio, and Parag Pathak, "Forced sales and house prices," *American Economic Review*, volume 101, number 5, August 2011.

[43] An estimated 13.9 percent of defaults were strategic, meaning the homeowners could have paid, but allowed foreclosure to proceed because they had negative equity. Kristopher Gerardi et al., *Unemployment, negative equity, and strategic default*, Federal Reserve Bank of Atlanta, working paper 2013-4, August 2013.

To illustrate the point, we compare the household debt dynamics in Denmark and the United States.[44] At 267 percent of income, Denmark had one of the highest household debt ratios in the world in 2007. In comparison, the US debt-to-income ratio was 125 percent at its peak. And yet household default rates have been negligible in Denmark: mortgage arrears (percentage of mortgages on which no payments have been made for 90 days or more) never exceeded 0.6 percent during the crisis, while in the United States they were more than 12 percent at the peak.[45]

This divergence can be explained by several factors, including the distribution of borrowers taking home loans and regulations on mortgage lending. In Denmark, the highest-income households borrow the most, both in absolute terms and in relation to income. Denmark's household debt-to-income ratio reached 280 percent for the top income quintile in 2007, when the ratio was just 79 percent for the lowest income quintile. But richer households have more discretionary income, and so they can more easily afford more debt. Tax deductibility of mortgage interest payments provides a strong incentive for even rich households to borrow, particularly given Denmark's high income tax rate. Moreover, the highest income households have substantial financial assets with which to pay off debt in the case of unemployment or other shocks. Equally important, lending standards in Denmark have remained high, even as household debt has risen, with borrowers limited to mortgages worth at most 80 percent of the value of the property.

This is in stark contrast to the United States, where growth in household debt was greatest among households that had less ability to repay debt and thus were more vulnerable to income shocks. The lowest income quintile of US households had a higher debt-to-income ratio than the richest 10 percent in 2007—and it had the largest relative increase in debt-to-income ratio between 2001 and 2007 as well. The middle-income quintiles were even more highly leveraged (Exhibit 20). At all income levels, except the wealthiest 10 percent, household debt exceeded the value of liquid financial assets (excluding the value of real estate, pensions, and insurance), and this gap grew larger between 2001 and 2007.

Another critical difference: US lending standards to households declined during the credit bubble years (2000 to 2007). Lenders offered subprime mortgages to high-risk borrowers and "Alt-A" mortgages (requiring less documentation of borrower finances than conventional mortgages) to those with slightly better credit scores. Both types of lending soared. Because these mortgages could be sold and packaged into asset-backed securities, lenders had less incentive to verify the borrower's ability to repay the loans. Credit standards were lowered even for conventional borrowers. Households could borrow up to 100 percent of the value of a home in some cases, while others took interest-only mortgages. A deterioration of lending standards enabled the high growth of leverage among low-income households and sparked the financial crisis when those borrowers began to default in large numbers.

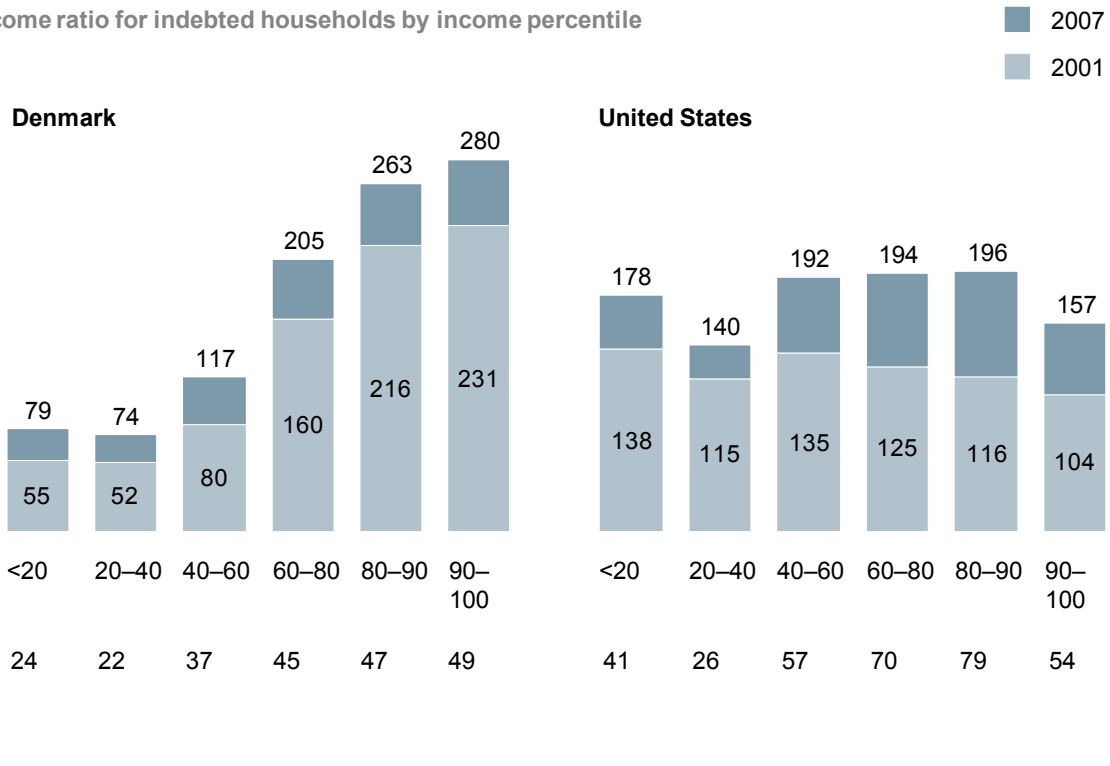
[44] Data for the United States are collected from the US Survey of Consumer Finances; data for Denmark are provided by Statistics Denmark, based on individual tax filings.

[45] We acknowledge that other factors, such as a much more generous social security system in Denmark, can help explain part of the difference in repayment.

Exhibit 20

In Denmark, debt increased most for the highest income groups before 2007; in the United States, middle-income households took on more debt

Median debt-to-income ratio for indebted households by income percentile
%



SOURCE: Statistics Denmark microdata; US Survey of Consumer Finances microdata; McKinsey Global Institute analysis

Household debt today may be unsustainable in a range of countries

The detailed data on household debt, income, and assets that we cite for the United States and Denmark are not available for most countries. To shed some light on household debt sustainability today, we therefore rely on aggregate measures. We assess risk using four key metrics: the level and change in the ratio of household debt to income, the debt servicing ratio, and change in housing prices. While these aggregate household sector measures may mask big differences among borrowers, they may be useful as indicators of growing vulnerability to distress.

Exhibit 21 displays these metrics for all countries with sufficient data. Seven countries—the Netherlands, South Korea, Canada, Sweden, Australia, Malaysia, and Thailand—appear to have household debt levels that would make them most vulnerable. Their debt-to-income ratios are not only the highest, but they also have grown significantly since 2007. Apart from Canada, these countries also have some of the highest debt service ratios in our sample.[46] These figures suggest potential risk but do not signal imminent crises. The creditworthiness of borrowers, the ability of lenders to assess risk, and the state of the macroeconomy will all influence the outcome. Nonetheless, these countries should, at a minimum, be monitoring the situation very carefully.

[46] The household debt figure for Canada includes the debt of unincorporated businesses, which is counted as corporate debt for all other economies in our database. This inflates the household debt-to-income ratio for Canada relative to other countries, although we cannot say by how much.

At the other end of the spectrum of advanced economies lie the United States, Germany, and Italy, which have much lower household debt-to-income ratios. Also, debt service ratios in these countries are among the lowest in our sample. In the middle of the list are European countries with more moderate household debt levels (the United Kingdom, Spain, and Portugal), some of which have stabilized or declined. Developing economies on the list often have rapidly rising household debt ratios (for instance, China, Brazil, and Russia) but are starting from lower levels than advanced economies.

Exhibit 21

Comparison of household debt levels across countries

Highest
Lowest

Country	Debt-to-income ratio, 2Q14[1] %	Change in debt-to-income ratio, 2007–2Q14[1] Percentage points	Debt servicing ratio,[2] 2013[1] %	House price increase, 2007–2Q14[1] %
Netherlands	230	10	23	-18
South Korea	144	18	22	15
Canada[3]	155	22	8	28
Sweden	157	19	15	18
Denmark	269	2	24	-13
Norway	266	-5	19	30
Australia	168	10	26	28
Malaysia	146	7	44	62
Thailand[4]	121	28	19	27
Ireland[4]	175	-33	20	-43
Belgium	93	16	22	15
Finland	106	11	10	14
United Kingdom	133	-17	16	9
Spain	113	-13	25	-31
Portugal	115	-9	21	-2
China	57	22	8	86
France	87	15	18	-2
Brazil[4.5]	41	14	22	178
Russia[4]	27	9	20	20
United States	99	-26	10	-9
Germany	83	-11	13	18
Italy	62	7	10	-18

1 Or latest available.
2 Defined as interest plus principal payments divided by household disposable income. Sweden is estimated using reported interest rate and debt figures
3 Canada household debt figures includes the credit market debt of unincorporated businesses.
4 Debt-to-income ratio for Ireland, Brazil, Russia, and Thailand correspond to 4Q13.
5 Banco Central do Brasil reports house price index only from 2010 onward. The change from 4Q07 is estimated.

SOURCE: National sources; BIS; Eurosystem Household Finance and Consumption Survey; IMF; McKinsey Global Institute analysis

What policy makers can do to improve the sustainability of household debt

The discussion in this chapter suggests that rising household debt is to a large extent a natural consequence of economic and financial development. It is also clear from history that credit bubbles, asset price booms, and subsequent crises and recessions are recurring events. These events are also tied to the decisions made by households about how to use and pay for debt. As the micro- and macroeconomic drivers and effects of household debt become better understood, we can identify measures that policy makers and businesses

can take to prevent bubbles and manage credit cycles. Five suggestions are offered here to start the discussion.

Encourage innovation in mortgage contracts

The way mortgage contracts are constructed and enforced has enormous influence over how household debt affects the economy. Innovations in mortgage contracts can offer greater flexibility for borrowers and reduce the number of defaults. One approach would be to build in an insurance component to make automatic adjustments in repayment schedules based on specific events, such as loss of a job or indications of stress in the economy that would affect borrowers' ability to pay, such as recession and rising unemployment.

Economist Robert J. Shiller advocates "continuous workout" mortgages in which changes in the monthly payment would be triggered by changes in home prices or in income (due to job loss, for example).[47] Payments would revert to the original level when conditions improve. The goal is to reduce the need for borrowers to exercise the costly option of default and to give lenders a stream of continuous payments—while sharing the underlying risk with the borrower. Continuous workout mortgages could provide wider economic and social benefits, too, such as avoiding forced home sales and neighborhood blight, which can lead to additional losses for mortgage lenders.

A different type of innovation would introduce an equity-like element of risk sharing into mortgage contracts. For instance, economists Atif Mian and Amir Sufi suggest "shared-responsibility mortgages."[48] If home prices in the surrounding community decline below the purchase price of the home, the borrower's payment is reduced by a similar percentage. When prices recover, the payments revert to the original rate and the lender is entitled to 5 percent of the capital gain when the borrower sells. The objective is to avoid foreclosure by automatically adjusting loan payments during tough economic conditions, while sharing risk—and capital gains—with creditors.

Establish efficient mechanisms for restructuring household debt

Many countries lack comprehensive systems for debt relief for households or clear personal bankruptcy codes. When mortgage contracts are non-recourse, as in the United States, creditors can seize only the collateral that secures the loan in the event of default and the debt is then extinguished for borrowers. While mortgage defaults cause pain for both banks and homeowners, they enable rapid write-downs of debt and they share risk between creditors and borrowers. Non-recourse loans may encourage excessive risk-taking by borrowers, although strong macroprudential rules (see below) can dampen this effect. US household debt fell by 26 percentage points from 2007 to the second quarter of 2014 largely because of mortgage rules that allowed borrowers to default and walk away from debt (an estimated 13.9 percent of households used strategic defaults—walking away from "underwater" loans even though they could afford to make payments).[49]

Recourse mortgages, in contrast, allow creditors to take other assets and future income from borrowers. These loans have much lower foreclosure rates, but there is an economic cost in the reduced consumption of highly indebted households that forgo other spending to maintain housing payments. In nations with recourse mortgages, as in most of Europe and Asia, foreclosure is uncommon and it takes far longer to clear up the overhang of excessive housing debt. While this protects the financial system in times of crisis, it also delays deleveraging and resumption of healthy growth in consumption after a crisis. Ireland, which has recourse loans, actually reduced its household debt-to-income ratio even more than the United States, partly because of a workout program, under which 102,000 mortgages were

47 Robert J. Shiller et al., *Continuous workout mortgages*, NBER working paper 17007, May 2011.

48 Ibid. Atif Mian and Amir Sufi, *House of debt*, 2014.

49 Ibid. Kristopher Gerardi et al., *Unemployment, Negative Equity, and Strategic Default*, Federal Reserve Bank of Atlanta, Working Paper 2013-4, August 2013.

modified as of June 2014, or 13 percent of the total. Amending personal bankruptcy codes and mortgage repayment rules to allow orderly and swift deleveraging of households would be beneficial.

Use macroprudential tools to promote credit sustainability

Since the 2008 financial crisis, there has been a growing recognition that governments can apply macroprudential tools to ensure more stable credit growth. They can, for example, impose limits on loan-to-value ratios for mortgages that vary according to market conditions, and they can discourage certain types of risky mortgages, such as interest-only loans. They may also impose countercyclical capital and reserve requirements on banks to slow the pace of lending when there are signs of overheating. Most advanced economies have adopted macroprudential policies since 2008, but these rules can continue to be strengthened. They also need to be implemented in a timely fashion in response to the rising leverage in the economy. Regulators in many developing economies, where much of the global growth in household debt is occurring today, have yet to develop macroprudential tools. But doing so will be important for avoiding the credit boom-bust cycles that have been so damaging in the past.

Revisit tax incentives for debt

Because real estate and credit bubbles helped trigger the 2008 financial crisis and many previous crises, policy makers should reconsider the tax preferences given for household mortgages. The incentives that governments give for real estate vary widely across countries, but include deductibility of mortgage interest expenses and preferential capital gains treatment on residential home sales. While these incentives are usually adopted to promote the social goal of homeownership, in practice they provide the greatest benefits for high-income households that pay the highest taxes. Moreover, they help create housing bubbles by encouraging households to take on larger mortgages to buy more expensive homes. Policymakers therefore may need to revisit the mix of incentives given for homeownership and balance this goal against public incentives for other investments – particularly those that expand the long-term productive capacity of the economy, which residential real estate in most cases does not.

Increase transparency and data availability

In doing this research, we found that reliable data on household liabilities, assets, and income over time are unavailable outside a handful of advanced economies. But such data are essential for identifying excessive household leverage, since broader average measures of total household debt and total assets can mask pockets of highly indebted borrowers. Investing in surveys of household finances is critical if policy makers are to monitor credit risks building up in their economies more carefully. In addition, reliable real estate price indices for sales of both new properties and existing ones are essential for tracking real estate price movements to detect bubbles. Such indices are mainly available in advanced economies and are typically quite limited in developing economies. There would be great value in investing more in technology to track and monitor such data.

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3. SHADOW BANKING: OUT OF THE SHADOWS?

In the years prior to 2008, the global financial system became ever more complex, interconnected, and highly leveraged, contributing to the severity of the crisis. Credit intermediation chains became very long, involving multiple layers of securitization, multiple leveraged parties, and an opaque distribution of risk. This was reflected in the rise of non-bank entities and off-balance sheet activities, much of which was funded by debt. Between 2000 and 2007, financial-sector debt—including debt issued by banks and other financial institutions—grew from $20 trillion to $37 trillion, or from 56 percent of global GDP to 71 percent. Much of this debt was used to fund the so-called shadow banking system, whose vulnerability and pro-cyclical interaction with the real economy were starkly exposed by the financial crisis.

The banking system has deleveraged and become safer, and the most risky elements of shadow banking have declined in advanced economies.

There is considerable confusion over what shadow banking entails. Some definitions include all entities outside the banking system, such as pension funds, insurers, leasing companies, and other institutions, while others focus on activities such as securitization.[50] In this report, we define shadow banking as the set of activities, entities, and instruments that created the complex, opaque intermediation chains that proved so damaging before the crisis. This includes some types of securitization, such as off-balance sheet special-purpose vehicles and structured investment vehicles, repurchase agreements (repos), credit default swaps, and money market funds. We find that all of these have declined significantly since 2008 in advanced economies, a welcome development in the global financial system.[51]

In this chapter, we take a broader view of non-bank credit provision and find it is growing in importance. For instance, since 2008, most new credit for non-financial corporations in advanced economies has come from non-bank sources—including through corporate bonds, securitization, and lending by non-bank institutions—while bank lending has declined. We have constructed a detailed database of the sources of credit to households and non-financial corporations of ten advanced economies.[52] It shows that over the past decade, non-bank sources of credit have consistently accounted for more than half of credit to the private sector. We also discuss some rapidly growing (albeit still small) new sources of lending, including credit funds of alternative asset managers, as well as Internet-based peer-to-peer lending platforms.

[50] Major reports on shadow banking include *Strengthening oversight and regulation of shadow banking: An overview of policy recommendations*, Financial Stability Board, August 29, 2013, and *Global financial stability report*, IMF, October 2014. See the appendix for a more detailed discussion of how our definition compares to these.

[51] We treat shadow banking in China, which is growing in scale and complexity, in Chapter 4 of this report. For a discussion of other emerging markets, see *Global financial stability report*, IMF, October 2014.

[52] Australia, Canada, France, Germany, the Netherlands, Japan, South Korea, Spain, the United Kingdom, and the United States.

Given new regulations on banks, we expect non-bank credit intermediation will continue to be an important part of the global financial system. Unlike pre-crisis shadow banking, the most prominent forms of non-bank credit today usually do not entail high levels of risk. With the appropriate policies, a healthy mix of bank and non-bank institutions could promote a more stable global financial system.

$6.2T
US financial-sector debt in Q2 2014, down from $8.8 trillion in 2007

Financial system leverage and complexity have declined since the crisis

Two important and welcome developments have come in the wake of the global financial crisis: the banking system has deleveraged and become safer, and the most risky elements of shadow banking have declined in advanced economies. What is emerging is a more stable banking system (albeit more limited in its lending capacity) and an expanding role for other sources of non-bank credit, such as corporate bonds.

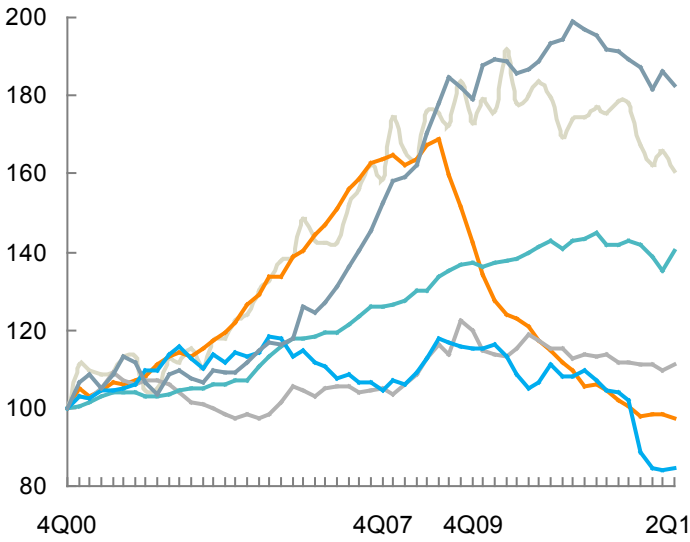
The financial sector has deleveraged

Debt issued by financial institutions relative to GDP has declined sharply in many of the countries that were at the heart of the crisis, such as the United States and the United Kingdom, and has declined or stabilized in other advanced economies (Exhibit 22).[53] Much of this debt had been used to fund shadow banking activities, which have declined (the drop also reflects a shift by banks toward deposits rather than debt funding).

Exhibit 22

The financial sector has deleveraged since the crisis—mostly driven by the United States

Financial-sector debt[1] (% of GDP)
Index: 100 = 2000



	Debt level, 2Q14 $ trillion	Change in debt-to-GDP ratio, Percentage points	
		2007–2Q14	2009–2Q14
France	2.7	15	2
United Kingdom	5.4	2	-14
Netherlands	3.2	38	7
Japan	5.4	6	-9
United States	6.2	-24	-17
Germany	2.8	-16	-25

1 Sample includes advanced economies with largest financial-sector debt levels (greater than $2 trillion) in 2Q14.
NOTE: Debt as percent of GDP is indexed to 100 in 2000; numbers here are not actual figures.

SOURCE: Haver Analytics; national sources; *World economic outlook*, IMF; BIS; McKinsey Global Institute analysis

[53] Financial-sector debts are the liabilities of institutions that take the form of a marketable debt securities; we exclude bank deposits and short-term interbank lending.

The United States has experienced the greatest decline in financial-sector debt since 2007—from $8.8 trillion to $6.2 trillion as of the second quarter of 2014. The main source of the decline is the retreat of asset-backed securities (ABS) issuers, which were a key part of the shadow banking system, as we describe below. The debt of ABS issuers declined by $3.0 trillion in the past six years—from $4.5 trillion to $1.5 trillion. Debt of US commercial banks has declined as well, by some $300 billion, because these institutions have focused on increasing deposits.

Beyond the United States, the majority of decline in financial-sector debt has come from banks. Debt issued by monetary financial institutions since 2009 has declined by 28 percentage points of GDP in the United Kingdom and by 22 percentage points in Germany.[54] This reflects a broad shift of banks toward raising deposits to fund their activities and an overall reduction in lending (see Box 2, "Banks have become safer, too").

The riskiest elements of shadow banking have declined since the crisis

The financial crisis revealed a large set of leveraged instruments and intermediaries and long credit intermediation chains that facilitated the global credit boom and greatly amplified risks throughout the system. The simplest form of intermediation is the corporate bond market, in which investors directly fund the borrower. Banks add one layer of intermediation, pooling deposits and then lending to borrowers. But in the shadow banking system that developed in the years prior to the crisis, long chains of intermediaries arose between the borrower and the lender, and loans were packaged and repackaged into securities, which multiplied leverage and obscured risks.

As shadow banking grew, so did its complexity and opacity. Simple forms of securitization, which had been used for mortgages in the United States for decades, took increasingly complex new forms. Mortgage-backed securities were pooled and repackaged into collateralized debt obligations and collateralized mortgage obligations. Different layers of risk were created and sold to investors, with the most senior tranches typically rated as "ultra-safe" AAA-rated securities, even when the underlying loan pools were very low quality. Once borrowers began to default on the underlying loans, these complex financial structures, often built with multiple layers of leverage, quickly collapsed, causing massive losses and drying up financial market liquidity. Many intermediaries and instruments at the heart of the shadow banking system have declined in scale since the crisis (Exhibit 24). While much has been written about the role of shadow banking, we offer a brief summary here and an update of what has happened to the various intermediaries and instruments.[55]

[54] Monetary financial institutions include central banks, other deposit-taking corporations (banks), and money market funds.

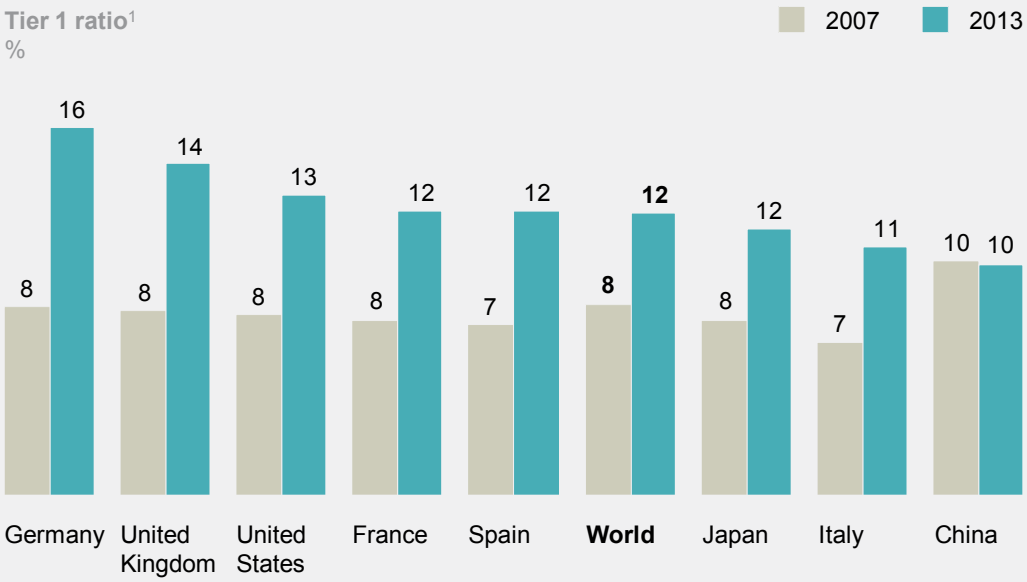
[55] For a thorough description of the mechanics of shadow banking, see *The financial crisis: Inquiry report*, National Commission on the Causes of the Financial and Economic Crisis in the United States, January 2011. For an entertaining read, see Michael Lewis's depiction of key players in the shadow banking system in his book *The big short: Inside the doomsday machine*, W. W. Norton, 2010.

Box 2. Banks have become safer, too

Since 2007, Basel III and national regulations have forced banks to reduce risk-taking and strengthen their balance sheets. Banks have significantly decreased leverage and strengthened their capital bases. Tier 1 capital for large banks now stands at 1.5 times the level of 2007 and comfortably above the pending Basel III requirement (Exhibit 23).[1] The US banking system added more than $500 billion in Tier 1 capital from 2009 to 2013.[2] In Europe, banks added about $250 billion of new capital ahead of the October 2014 stress test by the European Banking Authority.

Exhibit 23

Banks have become healthier: Tier 1 ratio is now 1.5 times the 2007 level



1 Based on a sample of listed banks with >$10 billion in assets.

SOURCE: Thomson Reuters; SNL Financial; McKinsey Panorama—Global Banking Pools; McKinsey Global Institute analysis

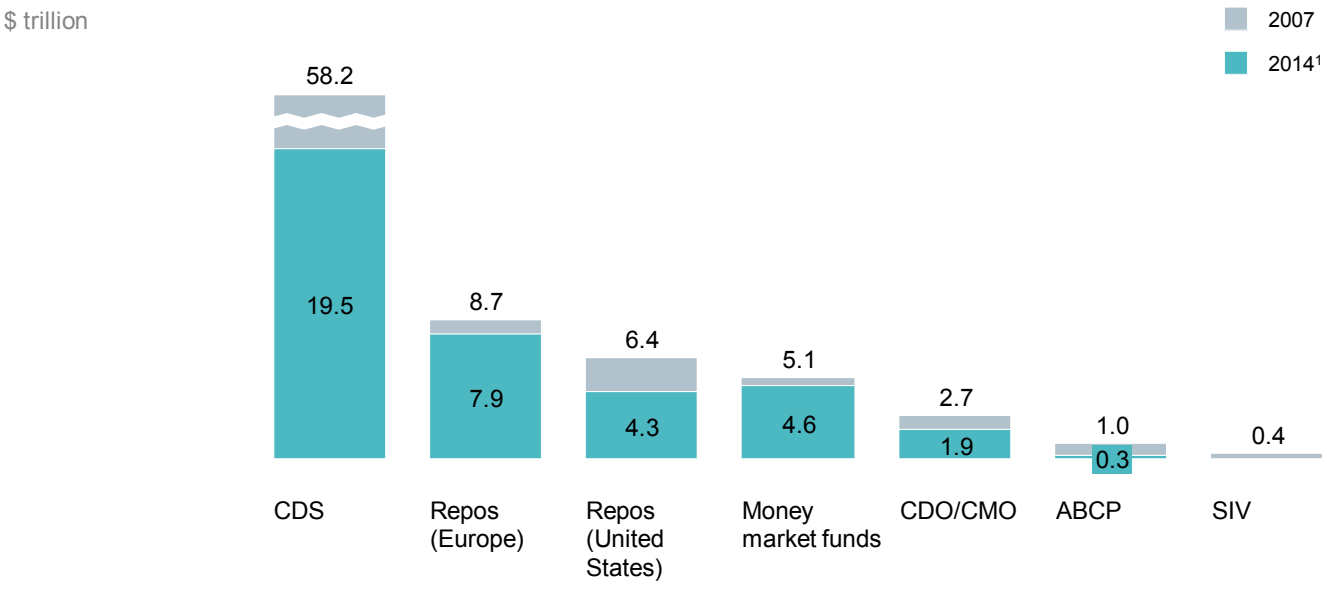
In addition, banks have continued to retreat from risky activities and to pare back counterparty risk. In Europe, major banks reduced market and counterparty risk by 20 percent in 2012 and 10 percent in 2013, mostly by reducing derivatives positions.[3] New regulations encouraging use of central counterparties for some derivatives should help simplify the network of bank exposures.[4]

A less welcome side effect of banks' retreat from risk is limited lending to many types of borrowers, including corporations and small and medium-sized enterprises (SMEs). According to one estimate, European banks reduced exposure to corporate loans by more than $500 billion between 2010 and 2013.[5] SMEs have been particularly hard hit. However, as we discuss in this chapter, non-bank sources of credit are filling the gap.

1 *The road back: McKinsey global banking annual review 2014*, McKinsey & Company, December 2014.
2 Capital added by the banks that participated in the Federal Reserve's Comprehensive Capital Analysis and Review program.
3 *Basel III: Shifting the credit landscape*, Fitch Ratings, October 23, 2014.
4 *Financial stability report*, issue number 36, Bank of England, December 2014.
5 *Basel III: Shifting the credit landscape*, Fitch Ratings, October 23, 2014.

Exhibit 24

Shadow banking entities and instruments that were important before the crisis have declined



	CDS	Repos (Europe)	Repos (United States)	Money market funds	CDO/CMO	ABCP	SIV
Decrease since 2007 %	-67	-9	-33	-9	-29	-70	-100

1 As of June 30, 2014.
NOTE: For CDS (credit default swaps), data are global net amount outstanding; repos (repurchase agreements), gross value of repo and reverse repo contracts outstanding; money market funds, global assets under management; CDO (collateralized debt obligations), global amount outstanding; CMO (collateralized mortgage obligations), amount outstanding in the United States; ABCP (asset-backed commercial paper), amount outstanding in the United States and Europe; SIV (structured investment vehicle), global assets under management. Numbers may not sum due to rounding.

SOURCE: BIS; FED; ICMA; SIFMA; Simfund; Fitch; McKinsey Global Institute analysis

Securitization and structured credit instruments

Simple forms of securitization have been around for decades and continue to play an important role in mortgage credit. Fannie Mae and Freddie Mac created the scale of the market for securitizations that we know today.[56] In their early years, they would buy mortgages from banks that met strict quality criteria, pool them into securities, and then sell investors shares in the resulting mortgage-backed securities that generated a stream of interest and principal payments. With the GSE Act of 1992, however, the agencies were ordered to begin buying mortgages for low- and middle-income families and households in underserved regions. Initially, mortgages in these categories were required to be 30 percent of all mortgages they purchased, but the target was raised to 56 percent in 2008.[57] To meet this goal, the agencies were forced to lower standards for the mortgages they bought, and they began to acquire Alt-A and subprime loans to meet their goals. From 1997 to 2007, Fannie Mae and Freddie Mac together bought $4.1 trillion of subprime and Alt-A loans.[58] They also began to accept mortgages with much higher loan-to-value ratios: in 2006, 40 percent of mortgages they purchased had loan-to-value ratios of 97 percent or higher, while a decade earlier it was rare for them to purchase a mortgage with an LTV greater than 80 percent.

56 Fannie Mae and Freddie Mac were placed into conservatorship in August 2008 in the face of large losses due to subprime mortgage assets that they had bought and held on their balance sheets.

57 Earlier lending to low-income households had been exclusively carried out by another government agency, the Financial Housing Agency.

58 *The financial crisis: Inquiry report*, National Commission on the Causes of the Financial and Economic Crisis in the United States, January 2011.

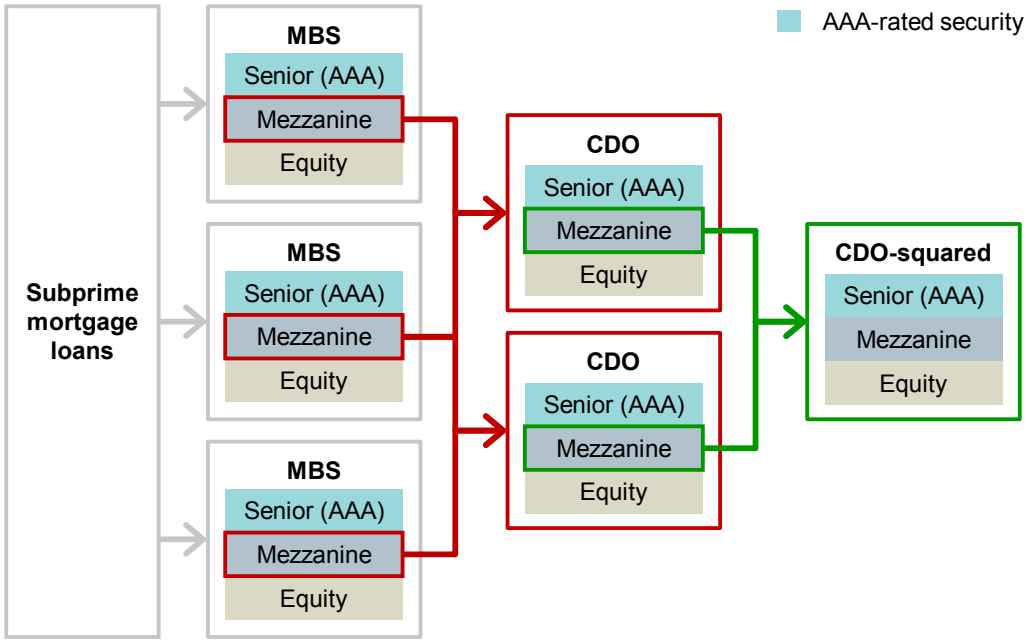
Mortgage securitization expanded to the private sector when investment banks set up special-purpose vehicles to buy mortgages that did not fit the criteria of government-sponsored agencies and create so-called private-label mortgage-backed securities. In order to market these securities, which contained riskier loans than Fannie Mae and Freddie Mac would accept, the banks created different tranches of risk: buyers of the senior tranche would be repaid first, followed by owners of the mezzanine tranche, and finally by buyers of the most risky equity tranche. The senior tranches of these mortgage-backed securities were typically rated AAA by credit rating agencies even when the underlying mortgages were subprime, in the (mistaken) belief that loans pooled from different parts of the country would have uncorrelated default risk. The AAA rating allowed insurers, pension funds, and money market funds to purchase private-label, mortgage-backed securities, which were considered ultra-safe. The stock of private-label, mortgage-backed securities and other asset-backed securities grew to about $4 trillion at the peak in 2007 and has since fallen to $1.4 trillion. Today there is almost no issuance of private-label mortgage securitizations, and the outstanding stock of such securities continues to decline.

The next development that added complexity and opacity to securitization was to repackage the riskier tranches of mortgage-backed securities in collateralized mortgage obligations and collateralized debt obligations (CMOs and CDOs). Once again, different risk tranches were created in these pools of loans, and the most senior tranches were rated AAA (Exhibit 25). By 2005, nearly all of the BBB tranches of mortgage-backed securities were purchased by CDO issuers. Finally, when CDO issuers began buying the most risky tranches of other CDOs, the "CDO-squared" was created. By 2007, the value of CDOs and CMOs (and CDO-squared and even CDO-cubed) grew to $2.7 trillion. When the housing market started turning after 2005, widespread defaults on the underlying mortgages caused massive losses in the securities built out of them. Overall, CDOs and CMOs in the United States and Europe have dropped by $800 billion, or 30 percent, since their 2007 peak.

Exhibit 25

Pooling and tranching risk enabled creation of AAA-rated securities that included subprime mortgages

SIMPLIFIED ILLUSTRATION



NOTE: MBS = mortgage-backed security; CDO = collateralized debt obligation.

SOURCE: McKinsey Global Institute analysis

$3T
Reduction in debt outstanding of ABS issuers since 2007

Special-purpose vehicles and structured investment vehicles

Two types of off-balance sheet vehicles were used by banks to engage in risky forms of securitization—and both created a direct link between the shadow banking system and the banking system that transmitted risks to banks during the crisis. The special-purpose vehicle was created to purchase pools of mortgage loans to create mortgage-backed securities (often out of subprime and low-quality loans) and to purchase tranches of private-label, mortgage-backed securities to create CDOs. These vehicles funded their activities by issuing debt. In the United States, debt issued by these ABS issuers grew to $4.5 trillion at the peak in 2007, and has since fallen to $1.5 trillion. Structured investment vehicles worked differently, issuing debt in order to buy and hold risky assets, such as the lowest-quality tranches of CDOs. The structured investment vehicles would then use the assets they purchased as collateral to engage in repurchase agreement transactions, transmitting risks to other players in the financial system. These vehicles were completely unregulated and took on enormous amounts of risk, growing to roughly $400 billion in 2007 and since falling to zero.[59]

Credit default swaps

Credit default swaps allow financial institutions to insure credit risk on their balance sheets and subsequently reduce capital requirements. Credit default swaps were also purchased for credit enhancement by special-purpose vehicles to achieve top-notch ratings on the securitizations and CDOs that they created. Credit default swaps could also be used for speculation by investors to bet against subprime mortgages. Issuance of credit default swaps soared during the credit boom, and contracts outstanding were worth $58.2 trillion in 2007, up from $6 trillion only three years earlier. During the crisis, as underlying securities began defaulting, credit default swap contracts were called on to pay, and losses rose into the hundreds of billions of dollars. The US insurer AIG was the largest issuer of credit default swaps, and the US government took over the insolvent insurer in 2008. Since the crisis, the credit default swap market has contracted by more than 60 percent, to $19.5 trillion as of the second quarter of 2014, and it continues to decline. New regulations encourage clearing credit default swap transactions through central counterparties, providing a more transparent picture of risk.

Money market funds

Money market funds were originally created as an alternative for savers in the 1970s, when high inflation rates made bank deposit interest rates unattractive.[60] In the early years, money market funds invested in short-term government notes and commercial paper. After 2000, as more money began to flood in from institutional investors looking for better yields on their cash, funds began purchasing riskier assets, such as short-term tranches of asset-backed commercial paper and repo contracts. Non-government institutional money market funds in the United States alone added around $600 billion of assets between 2000 and 2007. However, by 2008, some funds began losing money on their riskiest assets, and in September of that year, the net asset value of the Reserve Primary Fund fell below $1 (or "broke the buck"). Panicked investors started withdrawing, forcing the fund and other money market funds to sell assets in fire sales, triggering a chain of defaults as collateral values collapsed. The US Treasury stepped in with a guarantee program that insured investors in money market funds against losses. Since 2008, money market fund assets have fallen by $500 billion, to $4.6 trillion as of the second quarter of 2014, and outflows from US funds continue.[61]

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[59] Of the 29 structured investment vehicles in existence in July 2007, five were restructured, seven defaulted on note payments and were closed, 13 were rescued by liquidity support from their sponsoring banks, and four were unwound.

[60] Interest rates that could be offered by banks were capped under Regulation Q in the United States. Similar motives applied in Europe for the creation of money market funds. Regulation Q was partially lifted in 1986 and eliminated in 2011.

[61] European funds also experienced outflows until 2013 and holdings were almost stable in the first half of 2014.

Repurchase agreements (repos)

A repurchase agreement is a private contract between two parties in which one "sells" an asset to the other, with an agreement to repurchase the asset at an agreed-upon date for a slightly higher price. It is essentially a (very) short-term collateralized loan to the owner of the security, such as a bank, hedge fund, or other investment vehicle. While repos have been around for decades, in the years prior to the financial crisis, there were two important changes. First, the quality of the securities used deteriorated. Second, the same security was used in multiple transactions. At the peak, the $15.1 trillion repo market was an important source of liquidity for many banks. However, a large share of the securities originally accepted as collateral became unusable, including mortgage-backed securities that were being downgraded. As the repo market dried up, banks were unable to cover their liquidity needs. The market in the United States dropped by 30 percent in 2009, but it has stabilized since at $4.3 trillion. In Europe, the repo market initially dropped by 25 percent, but it has since grown to $7.9 trillion, slightly smaller than the $8.7 trillion it reached in 2007 and with only a 10 percent share of tri-party repo.

Simpler forms of non-bank credit are gaining in importance

While the long, complex chains of credit securitization that grew before the financial crisis are declining, simpler forms of non-bank credit to households and non-financial corporations have been growing in importance. Corporate bonds, straightforward forms of securitization (or "plain vanilla" securitization) from Fannie Mae and Freddie Mac, and lending by a wide range of institutions such as government programs and insurers account for more than half of lending to the private sector in our sample of countries, while bank lending has declined.

These forms of credit intermediation typically do not entail the leverage, opaqueness, or maturity mismatches that created heightened risks in shadow banking. In the corporate bond market, for example, creditors buy bonds directly from the borrower. There is no maturity mismatch or leverage in the transaction itself (unless the purchaser of the bond uses credit to buy it).

Overall, these non-bank lenders would appear to pose little systemic risk to the global financial system. While some non-bank lenders may be criticized for inefficient capital allocation, they do not involve long chains of credit intermediation. Nor do they increase complexity and interconnectedness in the financial system. Growth in "healthy" securitization and safe non-bank credit can be considered welcome developments at a time when banks are retreating from some types of lending.

50%+

Share of $59 trillion of private-sector credit that has come from non-bank sources

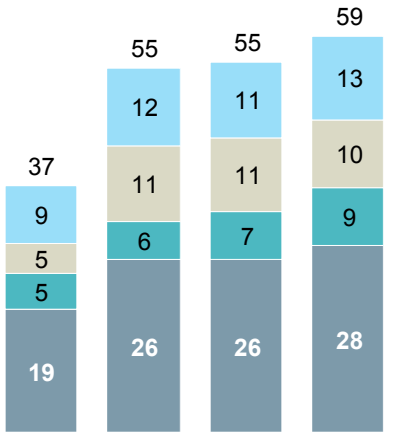
Non-bank sources account for half of private-sector credit in advanced economies

In our analysis, we have compiled a data set for ten developed economies that covers the sources of credit to the private sector in four categories: bank loans, corporate bonds, securitizations, and loans by other intermediaries.[62] We refer to the latter three categories as non-bank credit. In 2013, these sources accounted for more than half of all private-sector credit in our data set of ten advanced economies, or $31 trillion out of $59 trillion (Exhibit 26). Corporate bonds and loans from other sources—mainly other financial intermediaries (such as finance and leasing companies), governments, and intercorporate loans—are growing more rapidly than bank loans: 5.8 percent and 3.4 percent per annum, respectively, compared with 2.2 percent for bank loans.[63] However, despite the increase of non-bank credit since the crisis, our data show that the overall share of non-bank lending across these economies has been remarkably consistent for the past ten years.

Exhibit 26

Over the past 10 years, non-bank sources have provided more than half of the credit to the private sector in advanced economies

Outstanding debt in advanced economies[1]
$ trillion, constant exchange rates



	2000	2007	2010	2014[2]
Non-bank loans				
Securitization				
Corporate bonds				
Bank loans				
Share of non-bank credit %	50	53	53	53

Compound annual growth rate (%)	**2007–10**	**2010–14**[2]
Non-bank loans	-1.2	3.4
Securitization	-0.4	-2.5
Corporate bonds	5.8	5.8
Bank loans	0.2	2.2

1 United States, United Kingdom, Germany, France, Spain, Netherlands, Japan, South Korea, Canada, and Australia.
2 As of June 30, 2014.
NOTE: Numbers may not sum due to rounding.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; for some individual data points, additional country-specific data sources; McKinsey Global Institute analysis

62 Australia, Canada, France, Germany, the Netherlands, Japan, South Korea, Spain, the United Kingdom, and the United States.

63 Annual growth rate between 2010 and the second quarter of 2014.

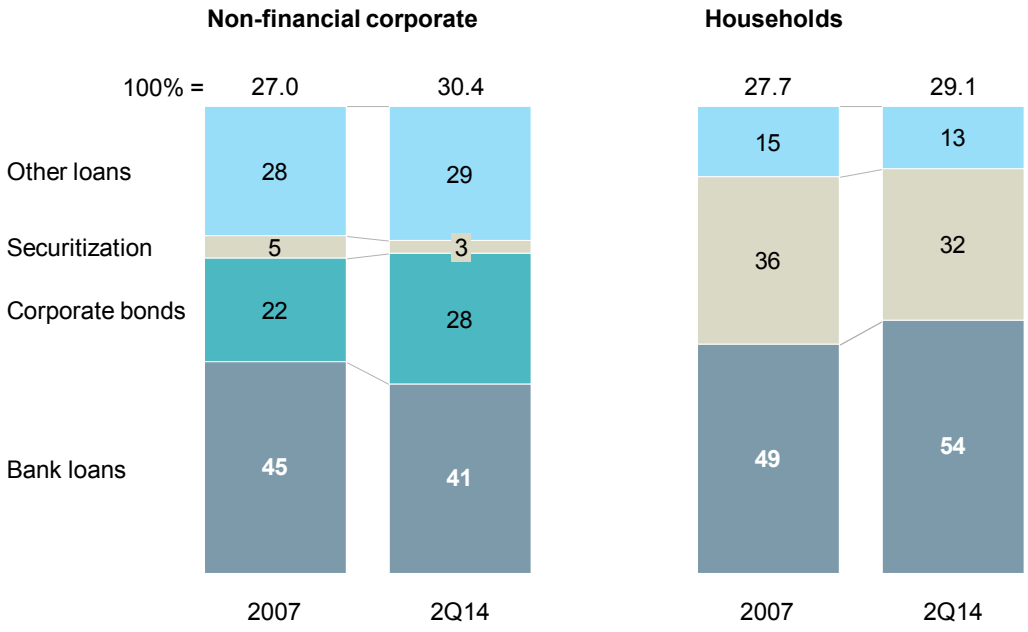
While total non-bank credit to the private sector has been stable, it is on diverging trajectories in the corporate and household sectors. This is because securitization played an important role in provision of household debt (mainly mortgages) and has declined as "private-label" securitization has dried up. Overall, non-bank credit as a source of household debt declined from 51 percent of household debt in 2007 to 46 percent in the second quarter of 2014 (Exhibit 27). The value of residential mortgage securitizations fell from $8.8 trillion to $8.4 trillion over the same period. Although securitization has been discussed since the crisis as a mechanism to promote lending to corporations (specifically small and medium-sized enterprises), in practice less than 10 percent of securitization has been for that purpose.

For corporations, bank loans declined from 45 percent of outstanding debt in 2007 to 41 percent in mid-2014, while other forms of non-bank credit have increased. Looking at the flow of new corporate credit reveals a more dramatic shift: net bank lending for corporations has been negative or at very low positive levels since 2009, while nearly all new corporate credit has come from corporate bonds, with some new lending by other non-bank sources (Exhibit 28). Globally, the stock of outstanding corporate bonds has grown by $4.3 trillion since 2007, from $7 trillion to $11.3 trillion. This dwarfs the $1.2 trillion growth between 2000 and 2007 and is a clear indication of the reduced importance of banks as a source of corporate credit since the crisis.

Exhibit 27

Since 2007, non-bank credit has grown as a corporate funding source and declined for households

Outstanding debt in advanced economies[1]
%; $ trillion, constant exchange rates 2013



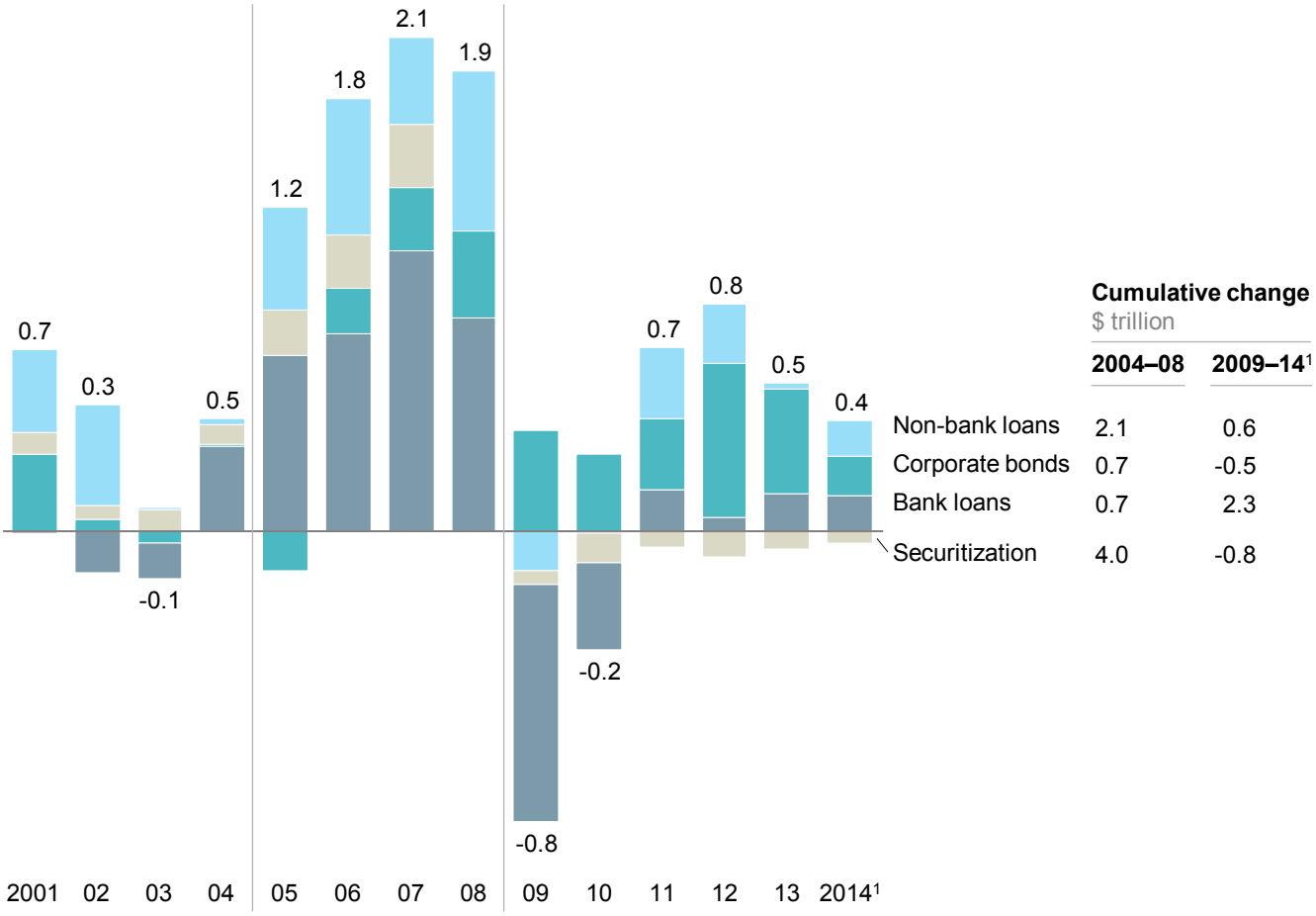
1 Australia, Canada, France, Germany, Japan, Netherlands, South Korea, United Kingdom, United States.
NOTE: Numbers may not sum due to rounding.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; McKinsey Global Institute analysis

Exhibit 28

Bank lending to corporate borrowers has been replaced almost entirely by other sources of credit since 2009

Change in corporate debt in 10 advanced economies[1]
$ trillion, constant exchange rates



1 Australia, Canada, France, Germany, Japan, Netherlands, South Korea, Spain, United Kingdom, United States.
2 As of June 30, 2014.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; for some individual data points, additional country-specific data sources; McKinsey Global Institute analysis

Non-bank loans come from a variety of institutions that do not take on the risks of shadow banking

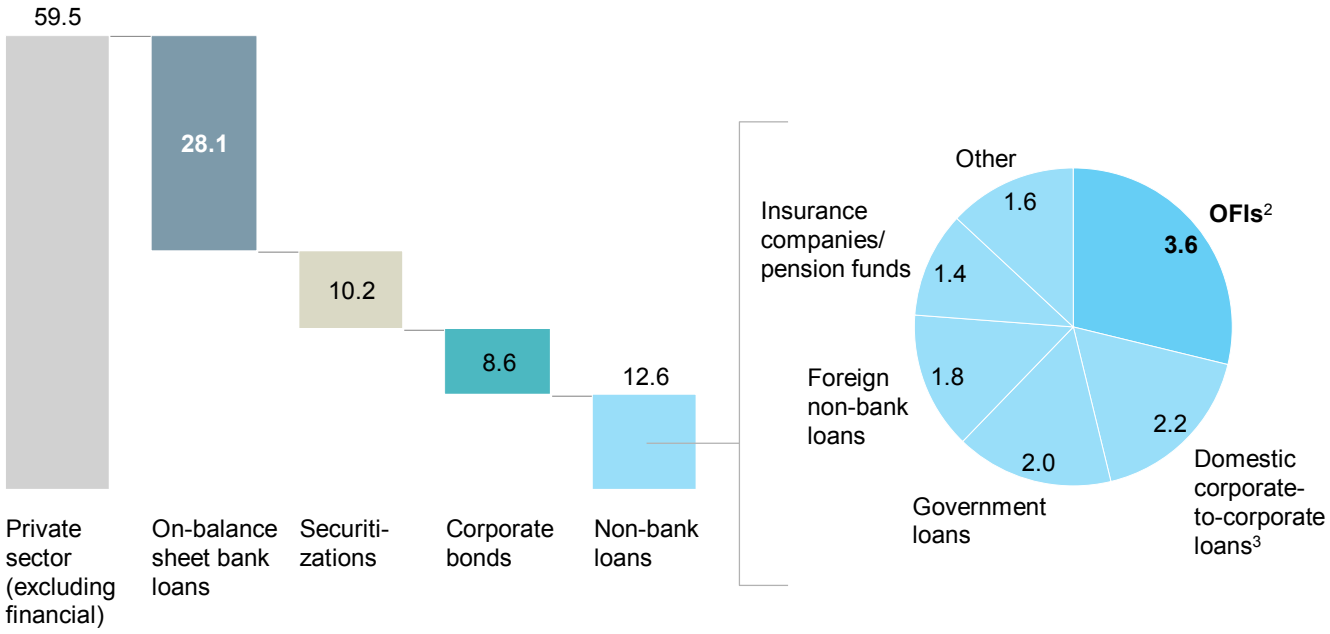
Non-bank loans outstanding reached $12.6 trillion in the second quarter of 2014, making them an important source of credit to the private sector. Sources of non-bank credit include "other financial intermediaries" (OFIs), such as finance and leasing companies; government lending programs; insurers and pension funds; intercorporate lending; and other sources (Exhibit 29). The importance of each type of non-bank lending varies considerably by country (Exhibit 30). OFIs are the largest category of non-bank credit and include leasing and finance companies. The activities of all these entities, which also include real estate investment trusts and hedge funds that may use leverage, are not well understood. OFIs are most active in Japan, the United States, South Korea, Canada, and Spain.

Governments are the second-largest category of non-bank lenders, with outstanding loans of $2 trillion across our ten sample economies.[64] These are typically loans for specific purposes. In the United States, for instance, student loans are more than half of the $1.2 trillion of government loans ($800 billion).[65] Loans to farmers are another large portion, as are mortgages for certain types of borrowers. In some countries, government loans are used to fund public corporations, such as the postal service or public broadcasting system. For the countries where historic data are available, we see that government lending has increased faster than other sources of lending. This suggests that governments are stepping in to finance some actors in the economy whose access to credit via other sources is limited, such as SMEs and, in the United States, college students.

Exhibit 29

"Other financial intermediaries" (OFIs) are the largest source of non-bank credit

Outstanding debt in advanced economies, 2Q14[1]
$ trillion; %



1 Australia, Canada, France, Germany, Japan, Netherlands, South Korea, Spain, United Kingdom, United States.
2 Includes inter-alia finance companies, credit funds, holding companies, and funding corporations; may also include unconsolidated bank subsidiaries.
3 Includes unconsolidated loans within corporate groups.
NOTE: Numbers may not sum due to rounding.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; for some individual data points, additional country-specific data sources; McKinsey Global Institute analysis

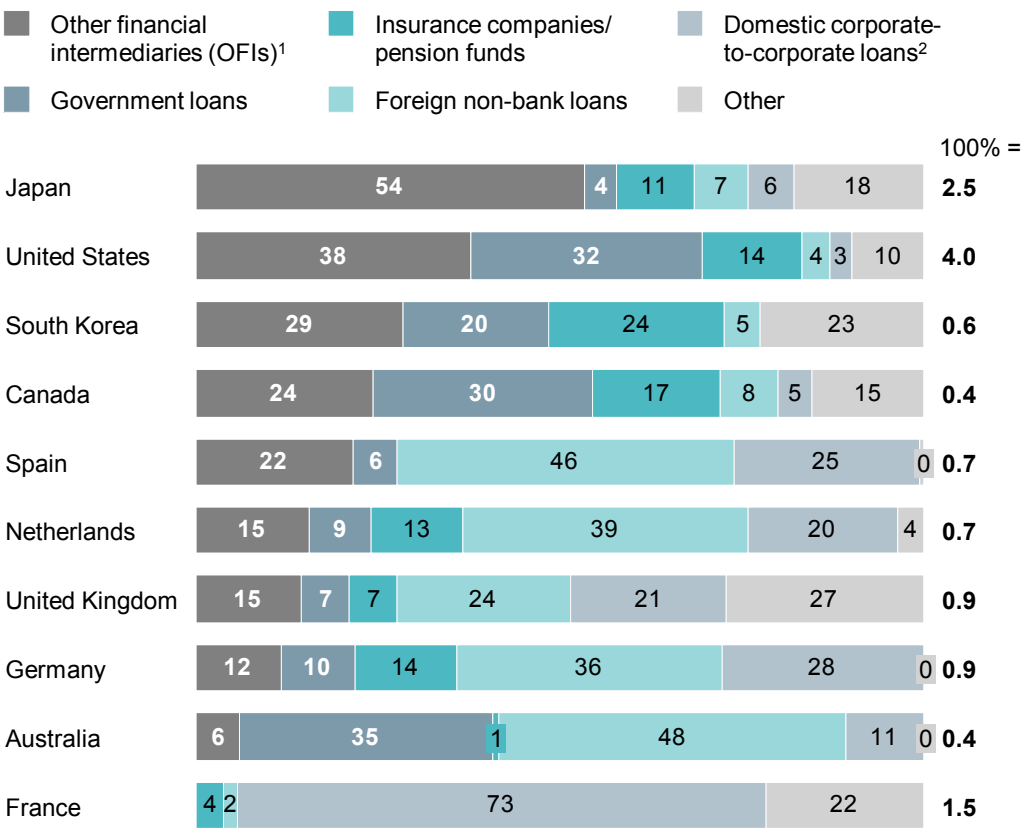
[64] We do not include loans from public-sector banks, such as KfW in Germany or Caisse des Dépôts et Consignations in France. These are included in bank lending.

[65] Includes loans originated by the Department of Education under the Direct Loan Program, as well as Federal Family Education Loan Program loans that the federal government purchased from depository institutions and finance companies.

Exhibit 30

The sources of non-bank loans vary across countries

Other loans by intermediary for the private sector, 2Q14
%; $ trillion


Other financial intermediaries (OFIs)[1]
Insurance companies/ pension funds
Domestic corporate-to-corporate loans[2]
Government loans
Foreign non-bank loans
Other
100% =
Japan 54 4 11 7 6 18 2.5
United States 38 32 14 4 3 10 4.0
South Korea 29 20 24 5 23 0.6
Canada 24 30 17 8 5 15 0.4
Spain 22 6 46 25 0 0.7
Netherlands 15 9 13 39 20 4 0.7
United Kingdom 15 7 7 24 21 27 0.9
Germany 12 10 14 36 28 0 0.9
Australia 6 35 1 48 11 0 0.4
France 4 2 73 22 1.5

1 Includes inter-alia finance companies, credit funds, holding companies and funding corporations; may also include unconsolidated bank subsidiaries; for Japan majority is public financial institutions classified as non-depository taking OFIs; for the US majority is finance companies.
2 Includes unconsolidated loans within domestic corporate groups.
NOTE: Numbers may not sum due to rounding.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; for some individual data points, additional country-specific data sources; McKinsey Global Institute analysis

11%
Share of non-bank credit provided by insurers and pension funds

Direct lending from insurers and pension funds

Insurers and pension funds account for 11 percent of non-bank credit in our data set. These institutions traditionally have issued loans for commercial real estate and sometimes for infrastructure projects. As of June 2014, life insurers in the United States held $370 billion in mortgage loans, 90 percent of which were for commercial real estate. In total in our data set, direct lending from insurers and pension funds was $1.4 trillion as of mid-2014.

Since the financial crisis, lending by these players has expanded to new areas as banks have retreated. While many insurance companies cut back lending for commercial real estate in the years after the crisis, due to the concerns about the sector's prospects, they have become more active lenders in other areas of the economy. Participation by insurers and pension funds in syndicated loans for infrastructure and project finance, for instance, has grown by 50 percent per year since a low in 2009, reaching almost double pre-crisis levels; in 2013, across our sample of ten advanced economies, the flow was $75 billion. Three European insurers—Allianz, Axa, and Aviva—have set up direct credit teams to become more involved in this market. Another development is the increased interest of

insurers in direct lending to large corporations and to SMEs through syndicated lending or funds that hold securitized SME loans.

Corporate lending

Nearly one-third of non-bank loans in our data set are inter- and intra-corporate lending—both domestic and cross-border. The share of cross-border intercompany loans is much higher in European countries than elsewhere, reflecting the high level of financial and business integration in the European Union. The majority of these loans are made from parent to subsidiary or by special holding vehicles that are established as legal conduits for the funds. So-called special financial institutions are funding vehicles that are often, but not exclusively, established in the Netherlands for tax purposes. These account for around 75 percent of foreign business loans in the United States and the Netherlands and around 10 to 20 percent in Germany, Spain, and the United Kingdom.[66] It should be noted that intracompany debt is not a cause of financial risk but is an artifact of accounting rules.[67] We would ideally exclude intra-corporate loans from our analysis, but data limitations prevent us from doing that as these are not distinguished from intercorporate loans between unrelated companies.

Since the financial crisis, several new forms of non-bank lending have experienced strong growth, filling the gap left by retreating banks.

New forms of non-bank credit are growing rapidly but remain small

Since the financial crisis, several new forms of non-bank lending have experienced strong growth, emerging to fill the gap left by retreating banks.

Credit funds

Hedge funds and other alternative asset managers are one source. The global hedge fund industry now has an estimated $2.8 trillion of assets under management, a large portion of which are invested in sovereign and corporate bonds, syndicated loans, and other credit instruments. Some of the largest players in this field—Apollo, Blackstone, and the Carlyle Group—have expanded their credit businesses by more than 20 percent per year since 2009. However, the assets managed by such funds are still relatively small. These four players and four other prominent alternative asset managers that are active in credit and fixed income together manage more than $400 billion in credit-related funds, up from $178 billion in 2009, we estimate (Exhibit 31). These funds are invested in structured credit, direct lending, distressed credit, and other credit market activities.

The majority of credit funds limit withdrawals from investors, through either lock-up gates or limited withdrawal windows. While they may have some mismatch in the maturity of assets and liabilities, it is less than a bank in which deposits can be withdrawn on demand. Moreover, hedge fund leverage has declined since 2007.[68] On average, hedge funds employ leverage of up to four to five times, far less than a bank uses.[69]

[66] Based on figures from the Dutch National Bank (2012).

[67] Ideally, we would exclude intracompany loans, but in some countries these data cannot be separated from intercompany lending figures.

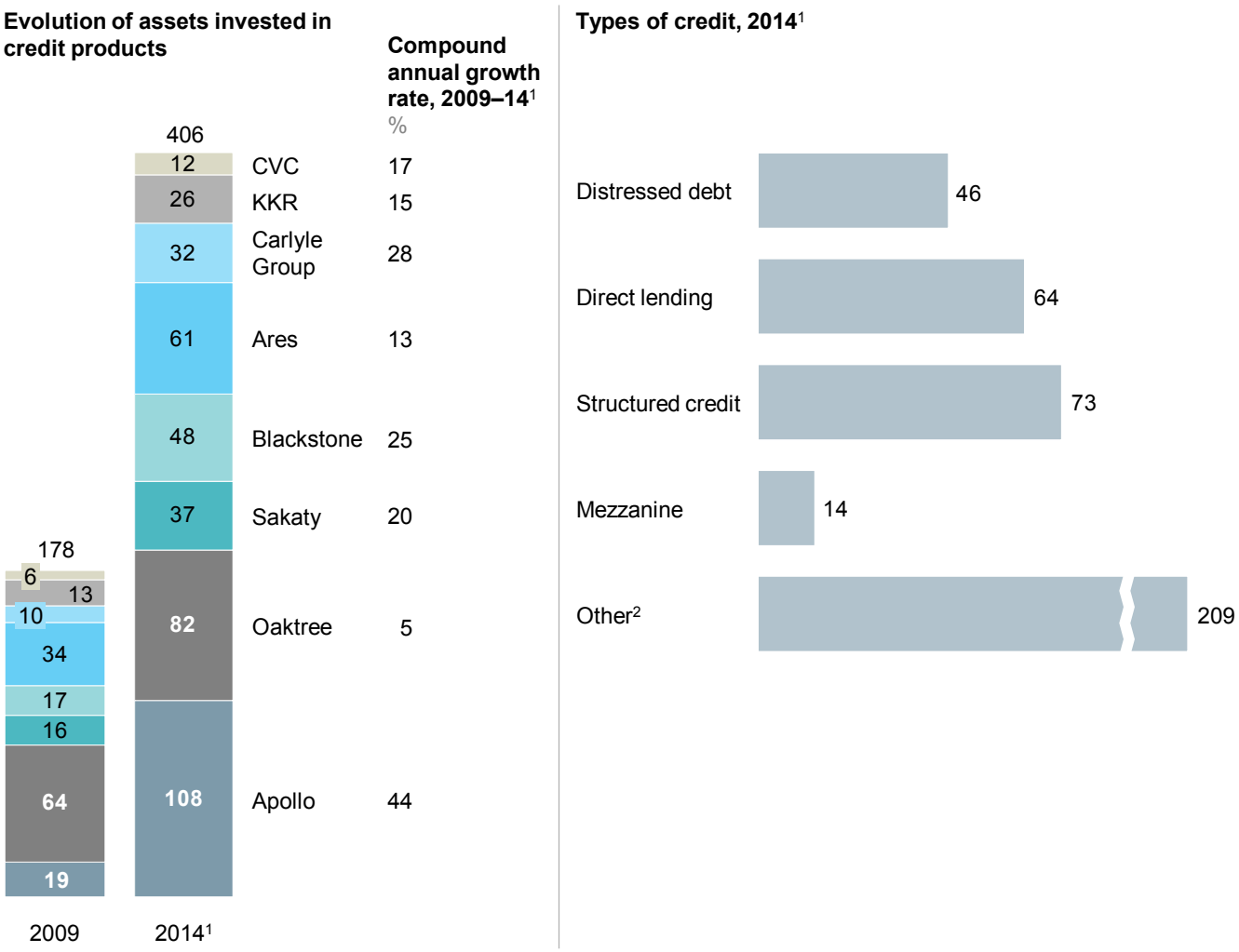
[68] See, for example, statistics on leverage of credit strategies in the surveys carried out by the FSA (2012) and the FCS (2014).

[69] Banks can leverage corporate lending by as much as 10:1.

Exhibit 31

Assets of credit funds have more than doubled since 2009

Assets under management in credit funds of 8 alternative asset managers
$ billion



1 As of September 30, 2014; Sakaty as of July 1, 2014.
2 Includes $48 billion of assets of Apollo's insurance subsidiary Athene.
NOTE: Numbers may not sum due to rounding.

SOURCE: Company websites, regulatory filings, and investor presentations; McKinsey Global Institute analysis

Peer-to-peer lending platforms

Online lending platforms are still a nascent phenomenon and we estimate that the outstanding loan volume of P2P platforms reached about $30 billion globally in the second quarter of 2014 (Exhibit 32). However, they are growing extremely rapidly, with volumes doubling every year. The largest P2P lending market has developed in China, which has few low-cost credit options for many borrowers. In the first half of 2014, P2P lending in China amounted to $17.2 billion, compared with about $10 billion in the United States and about $2 billion in the United Kingdom.

Exhibit 32

Peer-to-peer lending is only $29 billion in 2014

$ billion, latest available year

Country	Estimated market size	Key players[1]
China	~17	▪ ppdai.com ▪ Lufax.com ▪ gkkxd.com
United States[2]	~10	▪ Lending Club ▪ Prosper ▪ Kiva
United Kingdom	~2	▪ Zopa ▪ Funding Circle ▪ RateSetter
Germany	0.2	▪ Auxmoney ▪ Smava
Spain	<0.1	▪ Comunitae.com ▪ Lubbus

1 Latest available data for Lending Club, Prosper, Kiva.

SOURCE: Nesta; Wangdaizhijia; press research; McKinsey Global Institute analysis

The competitive advantages of P2P lenders are lower costs and extensive use of big data and sophisticated algorithms to assess creditworthiness of borrowers. Operating costs of P2P lenders can be less than half those of banks, making peer-to-peer lending a potential rival to bank lending in the long term.

The peer-to-peer lending model may grow in scale more rapidly in coming years, given the recent investments by institutional investors—and banks—in online lending platforms. In December 2014, Lending Club floated an initial public offering that gave it a market capitalization of more than $8 billion on the first day of trading.[70] As it continues to grow, P2P lending is also attracting more regulatory attention in the United States, the United Kingdom, and China. By and large, governments have taken a positive view of the role P2P platforms can play in the economy, assuming appropriate supervision. There are potential risks, including poor underwriting, over-leveraging by borrowers, and possible losses for lenders. Even if many of the loans made on P2P platforms end in default, however, P2P platforms—at least today—would not pose systemic risks. Nonetheless, regulators will need to continue to monitor this fast-growing market.

Policies to create a healthy mix of bank and non-bank lending

A diversified and stable financial system is key to funding the productive investment needed for economic growth. As we have seen, bank and non-bank institutions, as well as robust debt and equity capital markets, are important components. These markets and intermediaries must work together efficiently and safely to provide the capital to sustain ongoing businesses and fund new ones. In the aftermath of the crisis, new regulations have increased capital requirements and limited leverage of banks, making some forms of

70 Kaja Whitehouse, "Lending Club shares debut to 56% stock rise," *USA Today*, December 11, 2014.

bank lending less attractive. This makes it even more important to develop a healthy mix of alternative funding sources. Here we offer some thoughts on the most urgent priorities.

Further develop corporate bond markets

With bank lending constrained, corporate bonds are playing a larger role in global finance. Companies in the United States, Europe, and emerging markets have issued record amounts of bonds since 2008. Still, there is more room for bond market development. In previous MGI research, we found that the main users of corporate bond markets are very large companies. In the United States and Europe, more than 80 percent of issues are for $100 million or more, and over 80 percent of companies that issue corporate bonds have at least $500 million in annual revenue. Even so, when considering only companies with $500 million or more in revenue, we calculated that corporate bond issuance could increase by more than $1 trillion from current levels.

Securitization of mortgage debt began with a straightforward goal—to provide greater liquidity to the home mortgage market—and it can still perform this important function for a range of borrowers.

The opportunity would be even greater if we consider the private placement of bonds used by smaller companies. A particular opportunity exists in developing economies, where corporate bond markets are at an early stage. Concerted efforts by policy makers can change this situation rapidly. South Korea, for example, developed one of the world's largest corporate bond markets (relative to GDP) after the 1997 Asian financial crisis. Corporate bonds rose from 21 percent of GDP in 1993 to 45 percent by 2002. To function effectively, such markets need a yield curve set by regular government bond issuance, independent credit rating agencies, an efficient bankruptcy system and laws to protect creditors, and demand for bonds from institutional investors. Private placements may be the best way to extend access to corporate bonds to small borrowers. This would allow pension funds, insurers, and other institutions to lend directly to companies that are too small to raise debt with publicly traded bonds.

Encourage "plain vanilla" securitization

Securitization of mortgage debt began with a straightforward goal—to provide greater liquidity to the home mortgage market—and it can still perform this important function for a range of borrowers. This "plain vanilla" securitization involves a simple pass-through of pools of mortgage obligations into marketable securities, a practice that has been used by Fannie Mae and Freddie Mac in the United States for decades and has proven sustainable. In this simple form of securitization, the underlying quality of loans is uniformly high and the risk that an individual borrower will default is diversified. Moreover, all investors in the securitization bear the same risk. What proved to be unsustainable were opaque packages of loans of varying quality, complex tranching of risk, and the exotic instruments derived from these securities.

Institutions such as Fannie Mae or public agencies may be well suited to pursue plain vanilla securitization. The private sector can also perform securitization, but with precautions to avoid the problems that arose before the crisis: pooling of poor quality loans and disguising underlying risks. National regulations on loan quality for securitizations could be developed. A requirement for issuers of asset-backed securities to hold some of the securities and risk is also important (and is already in place in some countries). In today's environment,

securitizations for SME loans could be helpful, but it would be important to develop standard loan contracts for SMEs to ensure loan quality.

Strengthen monitoring of non-bank intermediaries

The variety of non-bank lenders makes it challenging to determine the quality of loan underwriting, the counterparty risk building up, the interconnectedness of financial intermediaries, and the total indebtedness of borrowers. While some non-bank credit providers such as finance and leasing companies, insurance lending, and government programs have been around for years, new types of lenders continue to emerge and grow. Since 2008, direct lending funds run by alternative asset managers such as hedge funds have been a growing presence, as have online P2P lending platforms. These new intermediaries appear to pose little risk to the overall financial system today (even if individual participants face losses), but they are evolving rapidly and need to be monitored closely.

Continue efforts by international organizations to develop reporting standards for non-bank intermediaries

The Financial Stability Board has been working since 2009 on a methodology for creating reporting standards for the broader shadow banking system and, more importantly, for a refined measure of credit-related shadow banking activities. This important effort should continue, and its scope could be expanded gradually to encompass offshore jurisdictions. Also, country submissions could be carefully scrutinized for quality and completeness.

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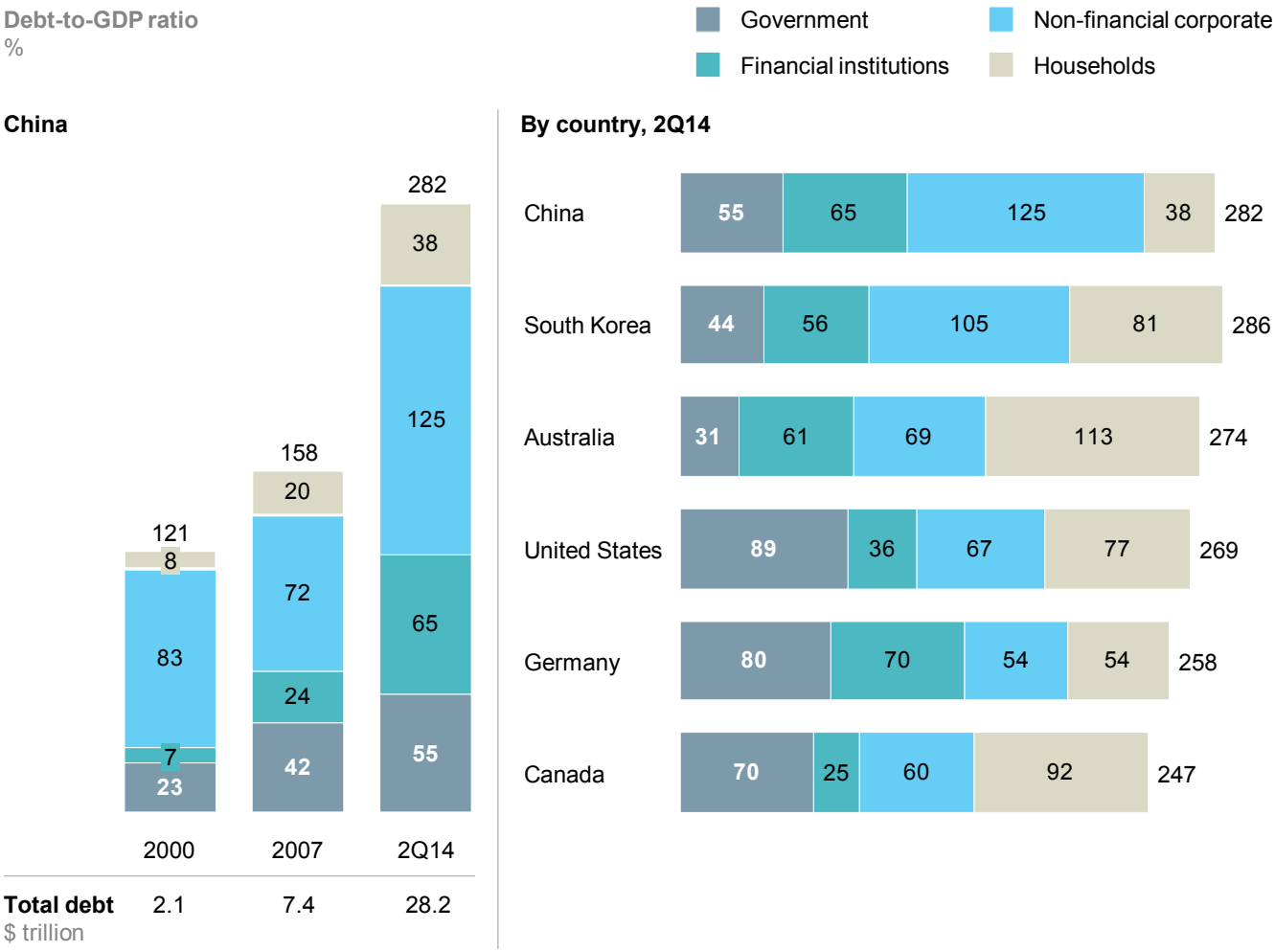
4. CHINA'S DEBT: THREE RISKS TO WATCH

Until recently, China's unprecedented economic rise was not accompanied by a significant expansion in leverage. From 2000 to 2007, total debt grew only slightly faster than GDP, reaching 158 percent of GDP, a level in line with that of other developing economies.[71] Since then, debt has risen rapidly. By the middle of 2014, China's total debt had reached 282 percent of GDP, far exceeding the developing economy average and higher than some advanced economies, including Australia, the United States, Germany, and Canada (Exhibit 33). The Chinese economy has added $20.8 trillion of new debt since 2007, which represents more than one-third of global growth in debt. The largest driver of this growth has been borrowing by non-financial corporations, including property developers. At 125 percent of GDP, China now has one of the highest levels of corporate debt in the world.

Exhibit 33

China's debt reached 282 percent of GDP in 2014, higher than debt levels in some advanced economies



NOTE: Numbers may not sum due to rounding.

SOURCE: MGI Country Debt database; McKinsey Global Institute analysis

[71] Here we refer to total debt—government, non-financial corporate, household, and financial sectors.

Throughout history and across countries, rapid growth in debt has often been followed by financial crises.[72] The question today is whether China will avoid this path and reduce credit growth in time, without unduly harming economic growth. While the size of China's current debt burden remains manageable, we identify three areas of risk. First, roughly half of the debt of households, non-financial corporations, and government is associated with real estate, either directly or indirectly. The second risk is rapid growth in lending to local government financing vehicles (LGFVs), many of which may struggle to repay. A 2014 audit of local governments found that more than 20 percent of recent loans were used to pay older debts and that almost 40 percent of debt servicing and repayments were funded by land sales.[73] The third risk stems from the fact that around one-third of outstanding debt in China is provided by its rapidly growing, opaque shadow banking system.

China's total debt has reached 282 percent of GDP, far exceeding the developing economy average and higher than the debt ratios of Australia, the United States, Germany, and Canada.

A plausible concern is that the combination of an overextended property sector and unsustainable finances of local governments could result in a wave of loan defaults in China, damaging the regular banking system and potentially creating a wave of losses for investors and companies that have put money into shadow banking vehicles. While this could cause serious damage to the economy, we also find that China's government has the capacity—if it chooses to use it—to bail out the financial sector even if default rates were to reach crisis levels. This would most likely prevent a full-blown financial crisis. Because China's capital account has not been fully liberalized, spillovers to the global economy would most likely be indirect, via a further slowdown in China's GDP growth, not through financial contagion.

Dealing with these concerns will require decisive reforms in the coming years. In particular, reforms to the municipal finance system, which are under way, are critical. China would also benefit from greater transparency and risk management in lending institutions, more robust real estate data, and clear, consistent processes for discharging bad debt through bankruptcy. Finally, a greater choice of investments would reduce demand for risky shadow-banking vehicles and provide alternatives to investment in the real estate sector.

Nearly half of China's debt is related to the property market

A large part of the credit boom in China since 2007 has been related to real estate. New construction, measured by gross floor area, has grown by 9 percent a year since 2008 in Tier 1 cities such as Beijing and Shanghai, by 11 percent in Tier 2 cities, and by 18 percent in Tier 3 cities (Exhibit 34).

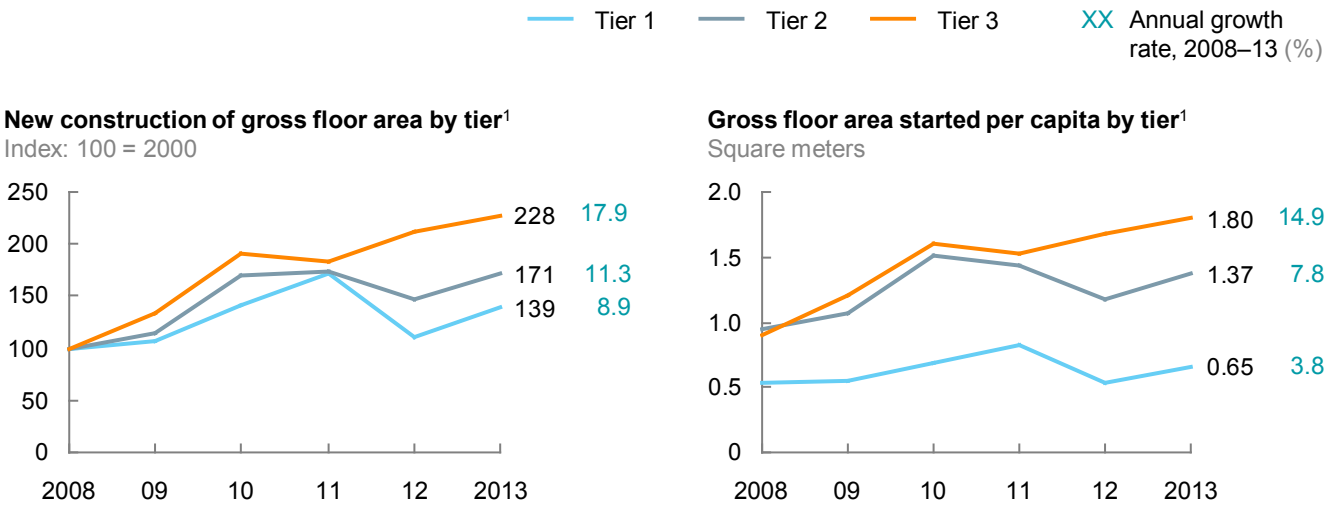
Property prices have increased as well, as households have bought homes and invested in real estate to find better returns than bank deposits offer. An index of prices in 40 Chinese cities rose by 60 percent from 2008 to August 2014; prices rose in Shenzhen by 76 percent and in Shanghai by 86 percent. Residential property prices in prime locations in Shanghai are now only about 10 percent below levels in New York and Paris (Exhibit 35).

[72] See, among others, Carmen M. Reinhart and Kenneth S. Rogoff, *Financial and sovereign debt crises: Some lessons learned and those forgotten*, IMF working paper number 13/266, December, 2013, and Atif Mian and Amir Sufi, *House of debt: How they (and you) caused the Great Recession, and how we can prevent it from happening again*, University of Chicago Press, 2014.

[73] China National Audit Office, *Introduction to local government debt*, December 30, 2013; Leo F. Goodstadt, *The local government crisis 2007–2014: When China's financial management faltered*, Hong Kong Institute for Monetary Research working paper number 27/2014, October 2014.

Exhibit 34

New construction in Tier 3 cities, measured by gross floor area, has grown more rapidly than in Tier 1 and Tier 2 cities

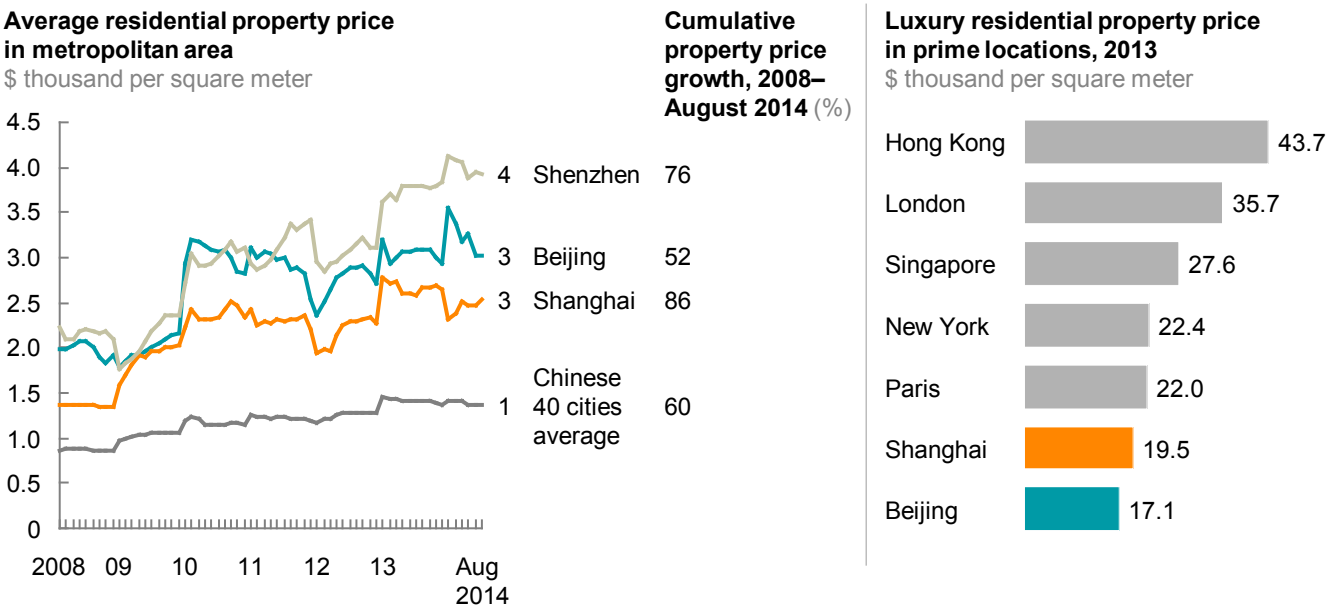


1 Tier 1 cities: Beijing, Guangzhou, Shanghai, Shenzhen. Tier 2 cities: Changchun, Changsha, Chengdu, Chongqing, Dalian, Fuzhou, Harbin, Hangzhou, Hefei, Huhehaote, Jinan, Kunming, Nanchang, Nanjing, Nanning, Ningbo, Qingdao, Shenyang, Shijiazhuang, Taiyuan, Tianjin, Urumqi, Wuhan, Xiamen, Xian, Zhengzhou. Tier 3 cities: Guiyang, Haikou, Lanzhou, Xining, Yinchuan.
NOTE: Debt as percent of GDP is indexed to 100 in 2008; numbers here are not actual figures.

SOURCE: National Bureau of Statistics of China; expert interviews; McKinsey Global Institute analysis

Exhibit 35

After rising steadily since 2008, prices for prime residential properties in Shanghai and Beijing are approaching those of New York and Paris



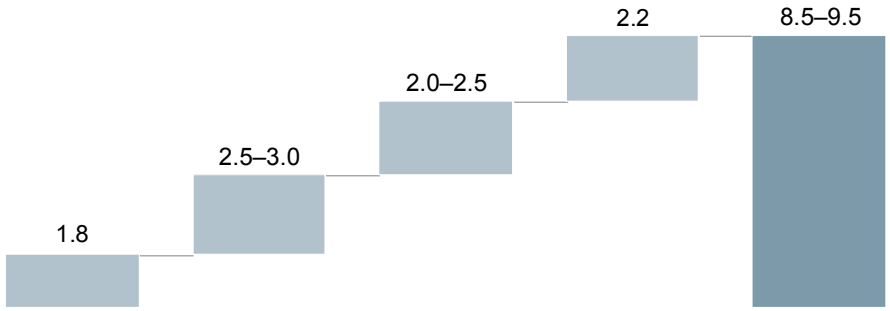
SOURCE: National Bureau of Statistics of China; Knight Frank Wealth Report 2014; McKinsey Global Institute analysis

We estimate that as much as 45 percent of China's debt (excluding financial-sector debt), or nearly $9 trillion, is directly or indirectly related to real estate (Exhibit 36). Lending to property developers accounts for about 10 to 15 percent of loans outstanding, and a similar share is lending to companies in construction-related industries such as cement and steel. Debt of local government financing vehicles accounts for 10 percent of loans. Mortgages of individual homeowners constitute only 8 percent of debt in the real economy—a far lower share than in advanced economies.

Exhibit 36

Nearly half of China's debt is related to real estate

Debt exposure to property, real economy 2Q14[1]
$ trillion



	Household[2]	Real estate sector	Real estate-related sectors[3]	Government[4]	Total exposure to property
As % of debt	8	10–15	10–15	10	40–45

1 Real economy debt excludes financial-sector debt.
2 Mortgages in household debt.
3 Including basic materials, mining, and other highly correlated sectors.
4 Local government financing vehicles, spending for social housing, and other construction projects.
NOTE: Numbers may not sum due to rounding.

SOURCE: People's Bank of China; National Audit Office; McKinsey Global Institute analysis

45%
Share of China's debt linked to real estate sector

The risk to the Chinese economy from a housing downturn stems from the potential impact on Chinese property developers and companies that operate in related sectors, such as steel and cement, rather than potential effects for homeowners, who do not appear to be over-leveraged (see Box 3, "China's household debt"). China has more than 89,000 property developers, contributing about 15 percent of GDP and accounting for 28 percent of fixed-asset investment. Across the industry, margins are falling, interest-coverage ratios are shrinking, and operating cash flow is becoming erratic. Small and medium-sized developers, which account for more than 80 percent of sector revenue and assets, are particularly vulnerable. On average, small developers have after-tax margins of about 8 percent compared with 15 percent for large players. We estimate that the interest coverage ratios of small developers fell from five in 2011 to three in 2013; large companies typically have coverage ratios of 16. Small developers in our sample also have more short-term debt (45 percent of total debt compared with 31 percent for large players).[74]

[74] Based on analysis of 135 property developers: 40 large developers with total assets of at least $5 billion, 65 developers with assets between $1 billion and $5 billion, and 30 developers with assets of $1 billion or less.

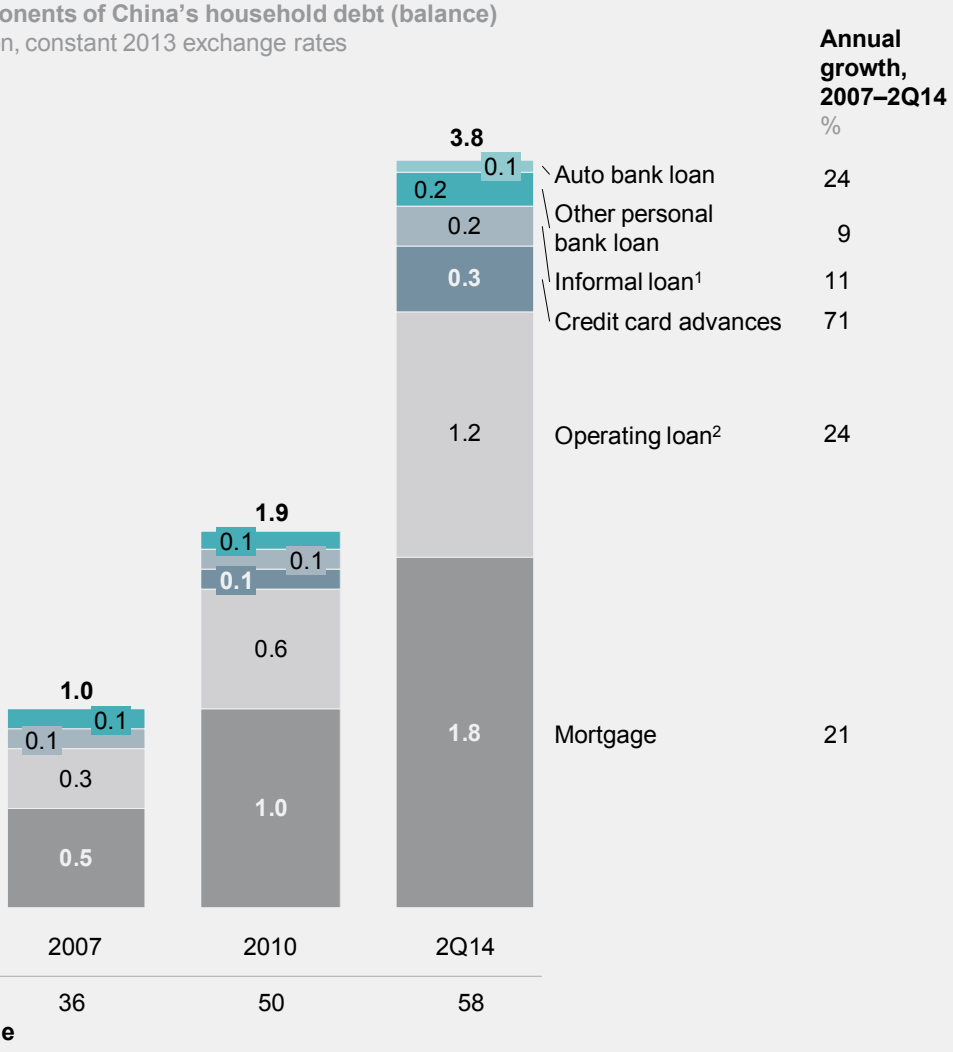
Box 3. China's household debt

China's household debt has nearly quadrupled, rising from $1 trillion in 2007 to $3.8 trillion in the second quarter of 2014 (Exhibit 37). Despite this growth, Chinese household debt is equivalent to only 58 percent of disposable income—far lower than in most advanced economies and less than in some developing ones such as Thailand and Malaysia. Growth in China's household debt partly reflects the deepening of the financial system and growing access to credit. Since 2007, the stock of mortgages has grown by 21 percent per year, and access to auto loans and credit cards has expanded as well. So far, lending standards remain high: the maximum loan-to-value ratio on a mortgage is 70 percent. Moreover, more than 30 percent of China's household debt consists of small business operating loans (microbusiness loans) issued by leasing companies, microfinance companies, and rural cooperatives.

Exhibit 37

Mortgages are the largest share of Chinese household debt, but loans for household businesses are nearly as large

Components of China's household debt (balance)
$ trillion, constant 2013 exchange rates



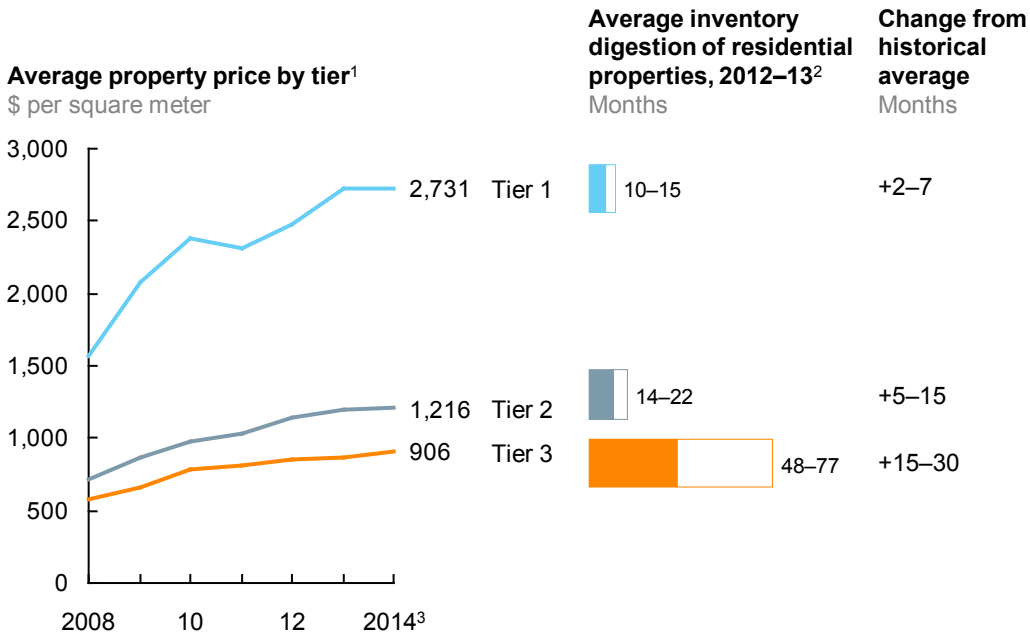
1 Assumes 30% of informal loans go to household debt, based on CICC and Goldman Sachs estimates.
2 Loans to households for small business purposes, mainly issued by financing companies, leasing companies, and rural cooperatives.
NOTE: Numbers may not sum due to rounding.

SOURCE: People's Bank of China; CICC; Goldman Sachs; McKinsey Global Institute analysis

China's real estate market has lost momentum, and a correction is under way. That could have important consequences for property developers and supplier industries. After rising 26 percent per year for 10 years, the value of residential property transactions in 40 Chinese cities fell by 14 percent from April 2013 to August 2014. The slowdown has been more severe in some large cities: the value of real estate transactions over that period fell by 33 percent in Beijing, 21 percent in Shanghai, and 31 percent in Shenzhen. In Tier 3 cities, inventories of unsold housing units are now equivalent to 48 to 77 months of sales—15 to 30 months above historic averages. Even in Tier 1 cities, inventory levels are ten to 15 months, far higher than historically (Exhibit 38).

Exhibit 38

Chinese property prices have not declined significantly, but unsold inventories are increasing



1 Tier 1 cities: Beijing, Guangzhou, Shanghai, Shenzhen. Tier 2 cities: Changchun, Changsha, Chengdu, Chongqing, Dalian, Fuzhou, Harbin, Hangzhou, Hefei, Huhehaote, Jinan, Kunming, Nanchang, Nanjing, Nanning, Ningbo, Qingdao, Shenyang, Shijiazhuang, Taiyuan, Tianjin, Urumqi, Wuhan, Xiamen, Xian, Zhengzhou. Tier 3 cities: Guiyang, Haikou, Lanzhou, Xining, Yinchuan.
2 Range of inventory digestion estimated by Citi Research, Standard Chartered Bank, and JP Morgan.
3 Through August 2014.

SOURCE: National Bureau of Statistics of China; Standard Chartered Bank; Citi Research; JP Morgan; expert interviews; McKinsey Global Institute analysis

If the real estate market continues to cool, many smaller property developers could face severe financial difficulties. This could spark a welcome consolidation, if handled efficiently through the bankruptcy courts. But some banks—and the shadow banking system that funds many smaller players—would face losses. City commercial banks and other smaller lenders would also be vulnerable since they have higher exposure to the property sector than larger banks. In these institutions, real estate accounts for 20 to 30 percent of loan portfolios.[75]

Local government debt is a large potential risk

At 55 percent of GDP, China's government debt remains low by international standards. More than half of this debt, however, is owed by local governments. Borrowing by local governments has grown by 27 percent per year since 2007—2.5 times as fast as central

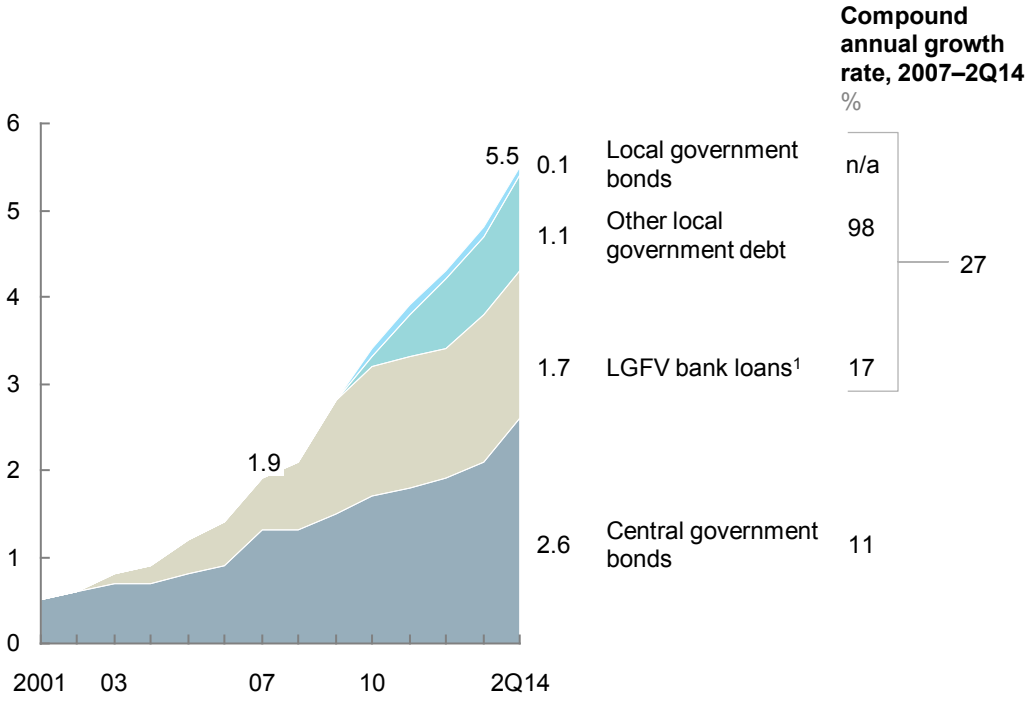
[75] See annual reports of city commercial banks, such as Bank of Beijing, Bank of Shanghai, and Bank of Jiangsu.

government borrowing (Exhibit 39). This partly reflects the effect of China's 2009 economic stimulus, under which the government sought to boost growth during the global recession by boosting lending to local government for construction projects.

Exhibit 39

Local governments have been key drivers of public debt growth since 2007 and now account for 51 percent of China's government debt

Outstanding balance of China's government debt by source
$ trillion, constant exchange rate, 2013



1 Local government financing vehicles.

SOURCE: People's Bank of China; National Audit Office; IMF; McKinsey Global Institute analysis

$1.7T
Amount of debt owed by local government financing vehicles in China

Two particular aspects of China's local government debt raise questions about risk: reliance on land sales and use of off-balance sheet local government financing vehicles. These financing vehicles fund infrastructure and other projects, using public land as collateral. By the second quarter of 2014, loans to local government financing vehicles had grown to $1.7 trillion, from $600 billion in 2007. In addition, local governments have begun to borrow via newer entities, which accounted for an additional $1.1 trillion of debt. Local governments use land sales to repay debt because of limitations in the municipal finance system. Since 1994, local governments have been required to turn over 50 percent of the income taxes they collect to the central government, and they do not have the ability to tax property or impose other local taxes. Only recently have municipalities gained a limited ability to issue bonds.

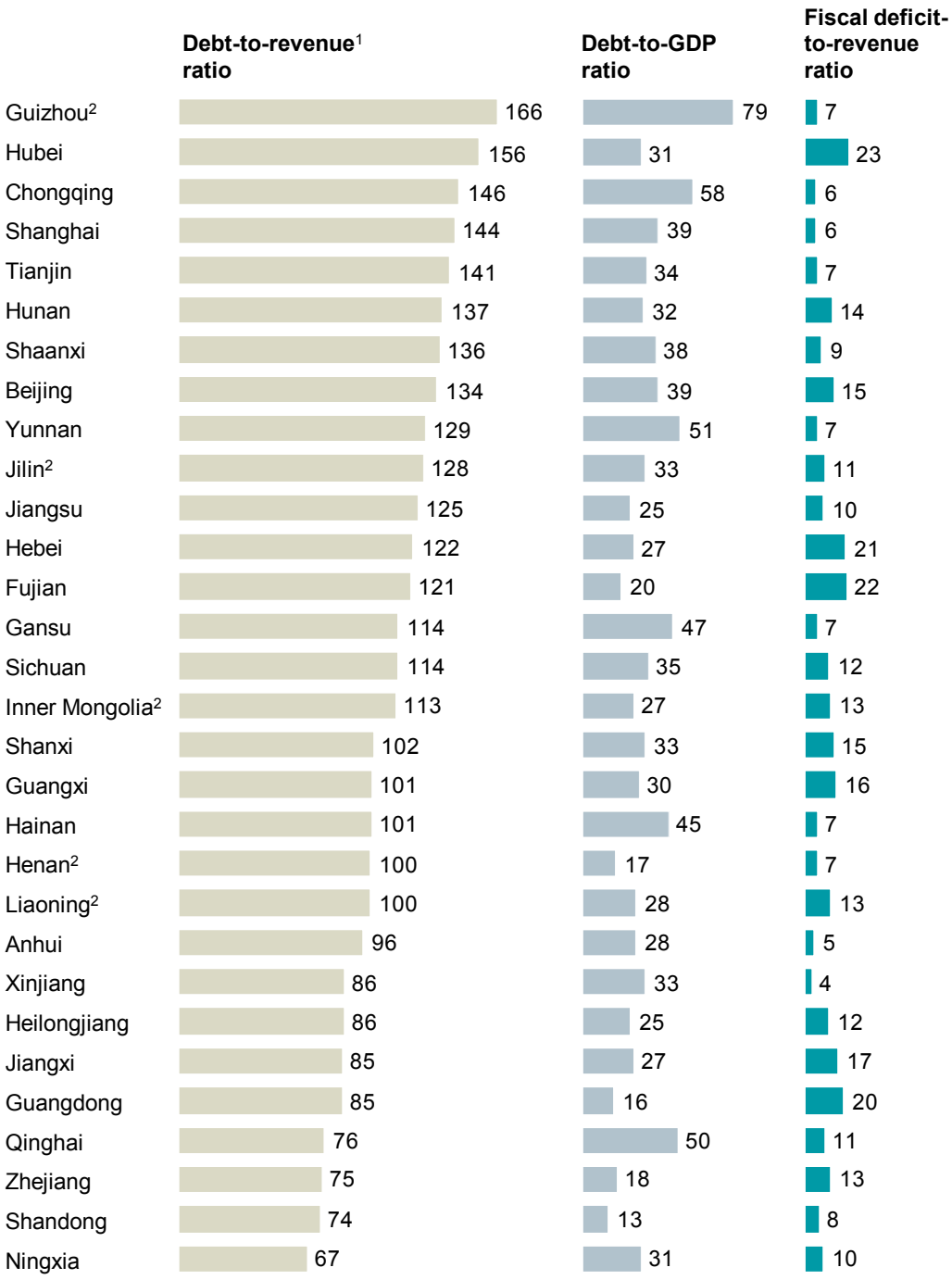
The ability of local government financing vehicles to repay their $1.7 trillion in loans is in question, at least in some areas. In our analysis, we found that, in 2013, eight provinces were running fiscal deficits of at least 15 percent of revenue and that most provinces had debt-to-revenue ratios of more than 100 percent (Exhibit 40). Several local funding vehicles have already missed initial loan payments, and a Standard & Poor's report issued in November

2014 stated that as many as half of China's provincial governments, if they were rated, would be below investment grade.[76]

Exhibit 40

Some local governments in China have debt exceeding 100 percent of revenue

Debt ratio and fiscal performance by province, 2012
%



1 Government revenue includes tax and fee income, non-budgetary income (mainly central government subsidies), and income from government-managed funds (70–80% are from land sales).
2 Estimated by applying national government-funded revenue and expenditure as percentage of total in 2012 to these provinces because of lack of income and cost of government-managed fund data.

SOURCE: National statistics bureaus; local government audit office reports; Moody's; McKinsey Global Institute analysis

[76] *China credit spotlight: Speedy reforms of public finance are key to provincial governments' creditworthiness*, Standard & Poor's, November 2014.

China's central government has recognized this risk. A 2014 audit of local government finances found that local governments raise more than a third of their funding from the shadow banking system, including via high-interest trust accounts. Some of the local government financing vehicles are profitable and can cover debt repayment and interest costs, but others, particularly those focused on social housing and highways, need subsidies. The audit found that 20 percent of recent new loans were used to repay older debt. To help reduce funding costs and provide more transparency in the market, the Ministry of Finance announced in August 2014 that it would allow local governments to swap loans for municipal bonds. However, the program is limited and at an early stage; it remains to be seen how effective this reform will be.

If local government financing vehicles are unable to repay their loans, the losses would be felt throughout the banking system. The China Development Bank is the single largest lender to the financing vehicles, providing $600 billion in loans. The "Big Four" commercial banks (Industrial and Commercial Bank of China, Bank of China, China Construction Bank, and Agricultural Bank of China) together have around $300 billion of loans to local government financing vehicles. City commercial banks and other financing companies have loaned $600 billion to local government financing vehicles.[77] The remainder of financing has come from shadow banking.

Shadow banking accounts for 30 percent of total loans outstanding in China, or $6.5 trillion.

36%
Annual growth rate of non-bank lending in China

Shadow banking accounts for one-third of outstanding debt

The third element of risk to China's financial stability comes from the growing volume of loans by non-bank financial institutions—so-called shadow banking. While shadow banking in advanced economies has declined since the financial crisis, in China it is expanding. By the second quarter of 2014, loans from these institutions reached $6.5 trillion, or 30 percent of total loans outstanding to households, non-financial corporations, and governments. Overall, non-bank lending grew by 36 percent per year from 2007 to the second quarter of 2014, compared with 18 percent per year for bank lending (Exhibit 41).

The rapid growth of shadow banking in China is in large part driven by the high demand for higher-yield investment products among Chinese investors. The People's Bank of China sets the maximum rate that banks can offer on deposits, currently 3.3 percent, leaving scant returns after China's 1.6 percent inflation.[78] Shadow banking entities have developed a range of wealth management and trust products to serve these investors. These funds are often invested in smaller businesses that cannot get bank funding, since bank lending is often policy driven and banks are discouraged from lending to such borrowers.

China's shadow banking system involves four main sources of credit: wealth management products, entrusted loans, trust loans, and financing companies and informal loans (Exhibit 42).

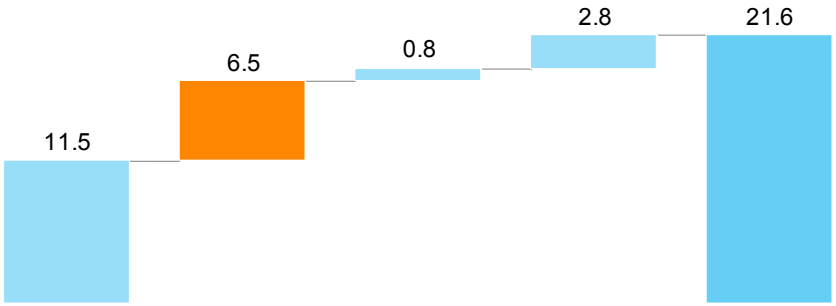
[77] Yinqiu Lu and Tao Sun, *Local government financing platforms in China: A fortune or misfortune?* IMF working paper number 13/243, October 2013; Yuanyan Sophia Zhang and Steven Barnett, *Fiscal vulnerabilities and risks from local government finance in China*, IMF working paper number 14/4, January 2014; 2013 annual reports of Bank of China, Agricultural Bank of China, China Construction Bank, Bank of Communications, China Minsheng Bank, Shenzhen Development Bank, China Everbright Bank, Shanghai Pudong Development Bank, China Citic Bank International, and China Merchants Bank.

[78] In November 2014, the People's Bank of China reduced the benchmark deposit rate by 0.25 percent, to 2.75 percent. However, it gave banks freedom to offer actual deposit rates at up to 20 percent above the benchmark, double the previous 10 percent limit. Thus, in effect, the maximum deposit rate allowed to banks remains unchanged, allowing more room for competition in the banking system.

Exhibit 41

30 percent of debt in China is provided by shadow banking entities, which have grown by 36 percent a year since 2007

Composition of debt, 2Q14[1]
$ trillion



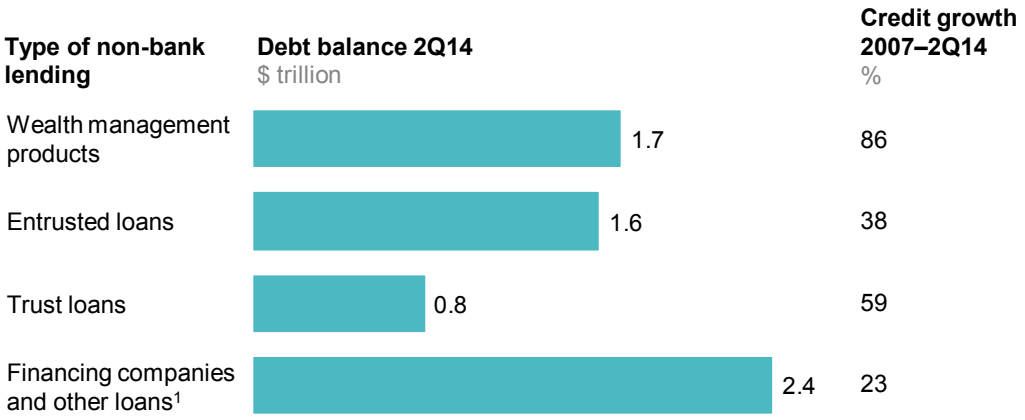
	Banks	Shadow bank lending[2]	Corporate bonds and securitization	Government bonds and borrowings	Total debt
Share of total %	53	30	4	13	100
As % of GDP	115	65	8	28	217
Credit growth 2007–2Q14 % per annum	18	36	33	12	21

1 Excludes financial-sector debt.
2 Includes entrusted loans, trust loans, credit channeled from wealth management products, loans from financing companies, and other informal lending.
NOTE: Numbers may not sum due to rounding.

SOURCE: People's Bank of China; National Bureau of Statistics of China; National Audit Office; BIS; CICC; Goldman Sachs; expert interviews; McKinsey Global Institute analysis

Exhibit 42

China's shadow banking sector provides credit from four major sources



1 Includes loans from world co-operatives, microcredit institutions, Internet peer-to-peer lending, and informal loans.

SOURCE: People's Bank of China; expert interviews; McKinsey Global Institute analysis

- **Wealth management products.** Somewhat similar to money market accounts or certificates of deposit but significantly riskier, these products are sold by banks and other institutions to retail customers. Typically, minimum deposits are 50,000 renminbi ($8,000), and holding periods are less than one year. Some accounts have a fixed return rate with guaranteed protection of the principal invested, while others offer a higher return without a guarantee. However, unlike money market funds that invest in short-term, highly rated liquid assets, wealth management products make loans to property developers, companies in related sectors, and large corporations. These loans are typically for one to three years—longer than deposits are kept—creating maturity mismatch risk. Assets in these wealth management products have grown by 86 percent a year since 2007 and now account for about 20 percent of total non-bank lending in China, totaling $1.7 trillion in the second quarter of 2014. Since 2011, the China Banking Regulatory Commission has attempted to regulate wealth management products by limiting their holdings of "non-listed" assets such as real estate loans to 35 percent of total funds; the remainder must be invested in publicly traded assets. In 2014, the regulatory commission requested commercial banks to establish stand-alone departments to monitor and manage wealth management businesses to manage risks.

- **Entrusted loans.** Large companies make "entrusted" loans to other companies, taking advantage of the arbitrage between their low borrowing rates and what they can charge smaller companies. Often, state-owned enterprises use entrusted loans to provide capital to subsidiaries or related companies, but some entrusted loans are made between completely unrelated companies. An estimated $1.6 trillion of credit has been extended through entrusted loans and these loans have grown by 38 percent annually since 2007. Rates are not regulated, but typically they do not exceed four times the People's Bank of China benchmark rate. Lenders generally do not use leverage, and entrusted loans do not entail maturity transformation. However, entrusted loans have a higher risk of contagion effects, since a default by one borrower will cause losses for another. In addition, companies often make loans based on business relationships without appropriately monitoring credit risk or the overall risk in their loan portfolios.

  With China's GDP growth slowing and overcapacity building in some industries, risk in entrusted loans could grow. A People's Bank of China report showed that in central Shanxi Province, 56 percent of recent entrusted loans were concentrated among sectors facing overcapacity and declining profitability, such as coking companies and steelmakers.[79] Loans between firms in these industries could quickly magnify the impact of defaults by borrowers, creating waves of second-order and third-order defaults in other companies.[80]

- **Trust loans.** Marketed to high-net-worth investors (minimums of 1 million renminbi are typical), these vehicles offer returns of 10 to 15 percent and invest in private-placement loans and securities. They are sometimes marketed through banks, potentially creating a false perception that they may be guaranteed, and typically require investors to commit their funds for two- or three-year periods. Some $1.3 trillion is invested in trust accounts, and they have grown at 59 percent annually since 2007. Trust account funds are used for loans to corporate borrowers in sectors such as real estate, infrastructure, and mining. Trust loans may be riskier than wealth management products since trust companies are more aggressive in pursuing high returns. Also, trust companies do not have large portfolios in which they can diversify risks. One large state-owned trust company missed a principal payment when a single borrower—a steel company—missed its interest payment. Since 2009, the China Banking Regulatory Commission has imposed stricter

[79] Lingling Wei and Dinny McMahon, "China's rising risks: New fount of credit raises China alarm," *The Wall Street Journal*, May 2, 2014.

[80] Cheng Lan, "Cross guarantee attacking real economy," Xinhua, April 23, 2014.

product marketing rules on trust companies. In April 2014, the regulatory commission issued new rules and notified owners of trust companies that they should be prepared to sell their stakes to fund any losses if defaults rise.[81]

- **Financing companies and other loans.** Shadow lending also includes loans from a range of other institutions, including financing companies, rural cooperatives, microcredit institutions, and Internet peer-to-peer lending, as well as informal loans from the "curb market" used by households and small businesses. We estimate that finance and leasing companies have $1.2 trillion of loans outstanding for everything from car loans to consumer credit loans for household durables. Such loans have been growing by 25 percent a year since 2007. Both households and small businesses use informal lending, which has been growing by 22 percent annually, reaching about $1.2 trillion in the second quarter of 2014. Informal loans are usually for less than 1 million renminbi and normally no collateral is required, but interest rates can reach 40 to 100 percent annually.

Overall, shadow banking in China is not as complex as the web of interconnected instruments and players that was at the heart of shadow banking in advanced economies before the financial crisis. It does not involve long intermediation chains, multiple layers of securitization, or highly leveraged players. Most loans involve a single intermediary and little or no leverage or currency risk.

Nonetheless, there are significant risks in Chinese shadow banking. To generate 10 to 15 percent returns, trust account managers are compelled to invest in speculative real estate projects and fund other high-risk borrowers. Their ability to properly assess credit risks also is unclear. These investments often entail maturity risk, since deposits are of shorter duration than loans. Wealth management products offer somewhat lower returns but entail similar risks. In addition, these products in particular may pose risks of contagion to the official banking system. Many of them are distributed by banks, and investors may have the impression that their principal is guaranteed. In case of substantial losses, the government might indeed find itself obliged to step in and compensate investors to stave off further damage to the financial sector and potential social unrest. Entrusted loans also create a substantial risk of contagion, because defaults by borrowers could damage the finances of the large companies that lend to them, in turn making them unable to repay debts and setting off a domino effect. Moreover, many of the corporate lenders that make entrusted loans do not have underwriting skills and instead make loans based on relationships.

China's government has the capacity to rescue the financial system, even if loan defaults reach crisis levels

A financial crisis caused by collapsing real estate and credit bubbles would be enormously damaging for China's growth. The difficult task of slowing lending without putting the brakes on growth is therefore an urgent priority. However, in the event of a crisis, we find that China's central government has ample capacity to bail out the financial system, if it chooses to do so. Indeed, the government might be expected to do so, given its record of buying bad loans from the commercial banks in the past decade. While perhaps avoiding a full-blown crisis, this response would curtail its future ability to provide economic stimulus to lift the nation's slowing growth.

With total government debt at just 55 percent of GDP—and central government debt only 27 percent of GDP (in the second quarter of 2014)—Beijing has the borrowing capacity to bail out the financial system even if default rates on all property-related loans were to reach 50 percent. We base this estimate on a few assumptions. First, we assume that only 20 percent of the face value of the loan is recovered. We also modeled potential scenarios

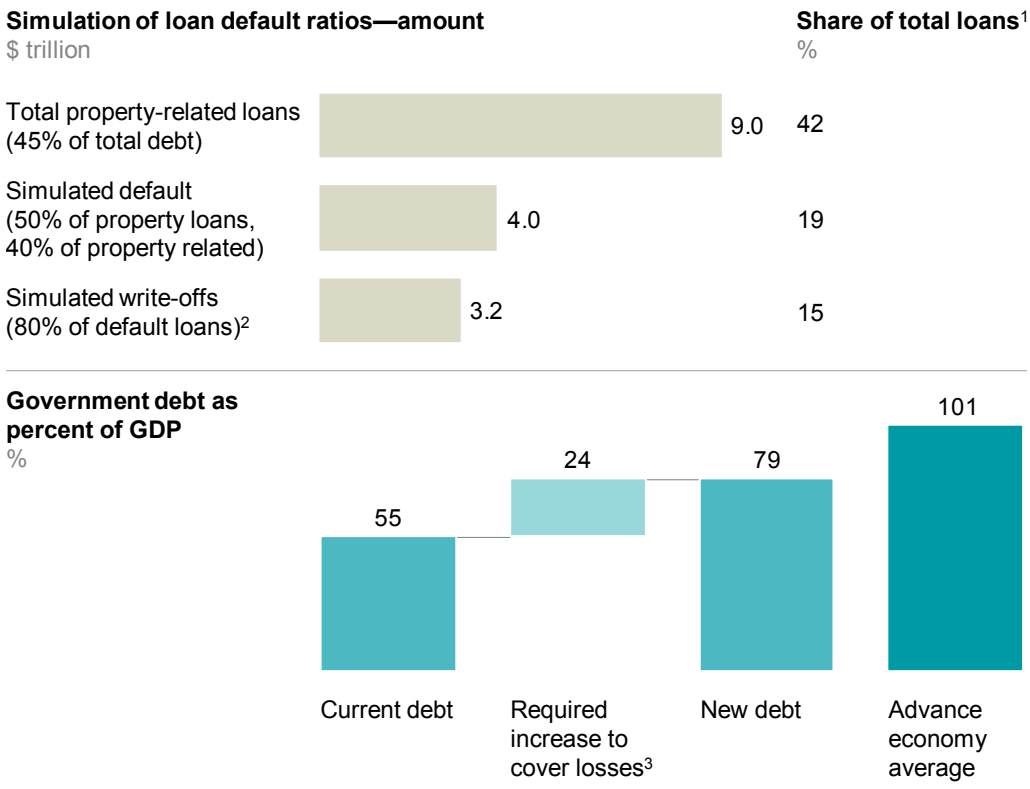
[81] "China tightens oversight of trusts as default risk rises," Bloomberg News, April 14, 2014.

for defaults on loans to local government funding vehicles using similar assumptions (up to 50 percent default rates and 20 percent recovery rates), as well as for loans to property-related sectors (40 percent default rates and 30 percent recovery rates).

Overall, losses in this extreme scenario could amount to 24 percent of GDP (as of the second quarter of 2014), or $3.2 trillion. If China were to issue bonds to cover that amount, total government debt would rise to 79 percent of GDP—still lower than in many advanced economies today—and central government debt would remain close to 50 percent of GDP (Exhibit 43). However, this debt would need to be issued in renminbi to avoid any currency appreciation and would entail a dramatic expansion of China's local-currency bond market. It is unclear how much demand there would be for such bonds.

Exhibit 43

China's government could raise enough debt to recapitalize the financial system, even if half of property loans defaulted



1 Government, nonfinancial corporations, and household loans.
2 Estimated based on asset management company (AMC) loan loss recovery ratio as of 2013 (20–30%).
3 Total loan loss (32% of GDP) minus loan loss from local government financing vehicles (8%) to avoid double counting of government debt.
NOTE: Numbers may not sum due to rounding.

SOURCE: People's Bank of China; expert interviews; McKinsey Global Institute analysis

Observers often suggest that China's vast foreign currency reserves (about $4 trillion as of mid-2014) could be used to bail out the financial system in the event of a crisis. However, these reserves would not likely be a first line of defense in a financial crisis, since using them would entail selling the foreign assets they are invested in and converting back to renminbi. That would cause significant appreciation of the renminbi and would harm export industries. Indeed, the central bank accumulated these reserves specifically to limit appreciation of the currency and using the funds for a domestic financial rescue would reverse the effect.

55%
Government debt-to-GDP ratio in China

Policy actions to reduce the risk of a debt crisis in China

The Chinese government has recognized many of the risks described above. Steps have been taken to curb the growth of shadow banking vehicles and create a path for local governments to improve their finances by issuing municipal bonds. It is too soon to tell how effective these measures will be. But further measures are needed to ensure that current and future levels of debt remain sustainable and that the current real estate slowdown does not develop into a financial crisis. Policy makers can consider initiatives in five areas.

Strengthen local government finance

Aware of the dangers building up in local government debt, China has taken steps to head off a potential crisis, including launching a pilot municipal bond program in August 2014. In October 2014 the State Council announced a ban on the use of local government financing vehicles and a plan that could roll a substantial portion of the $1.7 trillion financing vehicle debt into municipal bonds.[82] But more comprehensive reform is needed to give local governments greater control over their finances and reduce reliance on off-balance sheet debt, central government subsidies, and land sales for revenue. In China, local governments have no discretionary power to raise taxes; only four of 34 Organisation for Economic Co-operation and Development (OECD) countries have such restrictions.[83] One option would be for them to impose property taxes, which are widely used around the world, provide a stable revenue stream, and are easily administered. China piloted property taxes in Chongqing and Shanghai, but so far they contribute less than 0.5 percent of tax revenue.[84] Incentives that encourage municipal and provincial officials to focus mainly on economic growth and capital-intensive projects can also be reduced. In 2013, China announced broader criteria to judge growth, including sustainable economic development, social harmony, and environmental protection. With this series of improvement plans in place, consistent and timely implementation across the country will be key.

Introduce greater risk management capabilities and transparency across the financial system

Chinese financial institutions can further strengthen underwriting and risk management capabilities. Today, bank lending favors large state-owned enterprises, and debt is often not priced to properly reflect risk. Stronger independent rating agencies can help banks make informed lending decisions and find the most productive uses of capital, which could result in more lending for competitive private companies and SMEs. For strong established companies, more accurate credit risk assessments would reduce reliance on shadow lending.

In addition, greater transparency is needed across China's financial system. Risks of wealth management products and trust accounts should be fully disclosed to investors when financial products are sold. The risks associated with local government finance vehicles also should be made clear. Regulators such as the China Banking Regulatory Commission and other creditors need to see what projects local governments are funding, how (or whether) revenue is generated, and if projects can pay back their debts through project revenue. The recent launch of the China Legal Entity Identifier system, which assigns a unique ID to institutions based on an international standard, can help show the total debt accumulated by a borrower, as well as cross-institution and cross-border lending flows.

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82 Pete Sweeney and Lu Jianxin, "China local debt fix hangs on Beijing's wishful thinking," Reuters, October 23, 2014.

83 Xiao Wang and Richard Herd, *The system of revenue sharing and fiscal transfers in China*, OECD working paper number 1030, February 2013.

84 Esther Fung, "China stumbles on property tax plan," *The Wall Street Journal*, July 18, 2013.

Develop better data in real estate and other sectors

In advanced economies, land-registration systems typically provide detailed data about land and property sales, and land-use authorities publish data about construction activity. Real estate price indices, which are essential for understanding the state of the market, can be constructed by either government agencies or private companies. The Case-Shiller index is an example of a private sector property price index. It has tracked home price sales every month in 20 US cities since 1991, providing a long-term, reliable index. In China, the government and private companies publish some property data, but the scope and granularity of the databases are limited. For example, the National Bureau of Statistics publishes monthly data including price and transaction volume but only for 40 out of China's 660 large cities. Accurate construction data also are hard to find, since property developers tend to not report delays or cancellations in a timely manner. Accurate property price information alone will not prevent bubbles, as was shown in 2007, but it is the first step toward being able to identify when a bubble is building. Chinese policy makers and investors would benefit from richer and more detailed information on real estate markets to provide early warnings of rising risks.

Further measures are needed to ensure that current and future levels of debt in China remain sustainable and that the real estate slowdown does not develop into a financial crisis.

Make bankruptcy an efficient and predictable process

An effective bankruptcy system that discharges bad debt in an orderly way is as important to an economy as the systems for raising capital and lending. Allowing uncompetitive, insolvent companies to survive as debt is rolled over creates inefficient markets that hold back more capable competitors. Carrying bad debt limits banks' capacity to fund more productive enterprises. China adopted its basic bankruptcy law in 1986, which mainly applied to state-owned enterprises. Coverage was extended in 2007 to other types of companies, including enterprises funded by foreign investors and joint ventures. What is missing today is a consistent and predictable process that is applied equitably and is available to companies at a time when they can still reorganize, rather than liquidate. Voluntary bankruptcy remains a very difficult process: the official bankruptcy data show about 5,000 to 6,000 cases per year, less than one-seventh the number of annual corporate bankruptcies in the United States. Many more Chinese companies simply go out of business.[85]

Continue to liberalize the financial system to create more financing and investment options

Companies will continue to rely too heavily on debt and investors will continue to flock to shadow banking if they lack other choices. The equity market in China remains underdeveloped, with the total capitalization of publicly traded companies only 45 percent of GDP, compared with 115 percent in the United States and 97 percent in South Korea.[86] Chinese retail investors have concentrated their investments in bank deposits and real estate. Deposits account for 57 percent of financial assets, compared with 13 percent in the United States. Recognizing this challenge, China has attempted to liberalize regulation to create more investing choices. The China Securities Regulatory Commission has simplified initial public offering processes, and equity investing got a large potential boost in November

[85] Victoria Ruan, "Why stigma holds back China's bankruptcy law," *South China Morning Post*, August 12, 2013.
[86] Market capitalization of listed companies (percent of GDP), 2012 data from Worldbank.org.

2014 when the Shanghai and Hong Kong exchanges were linked.[87] China also launched the Qualified Domestic Institutional Investor program in 2007 to allow domestic institutional investors to invest on overseas exchanges. In 2013, it lowered the capital threshold for qualified investors. But growth of China's domestic asset management industry can also be encouraged to create more options for households to invest in a range of products. In addition, broader social safety nets are needed, since a key reason for the high share of household savings kept in bank deposits is that they can be readily accessed in the event of a medical or other emergency. With greater access to capital markets for companies and increased options for investors, China can develop a broader and more resilient financial system.

[87] Mainland investors gained access to 268 Hong Kong stocks and investors on the Hong Kong exchange got access to 568 Shanghai listings.

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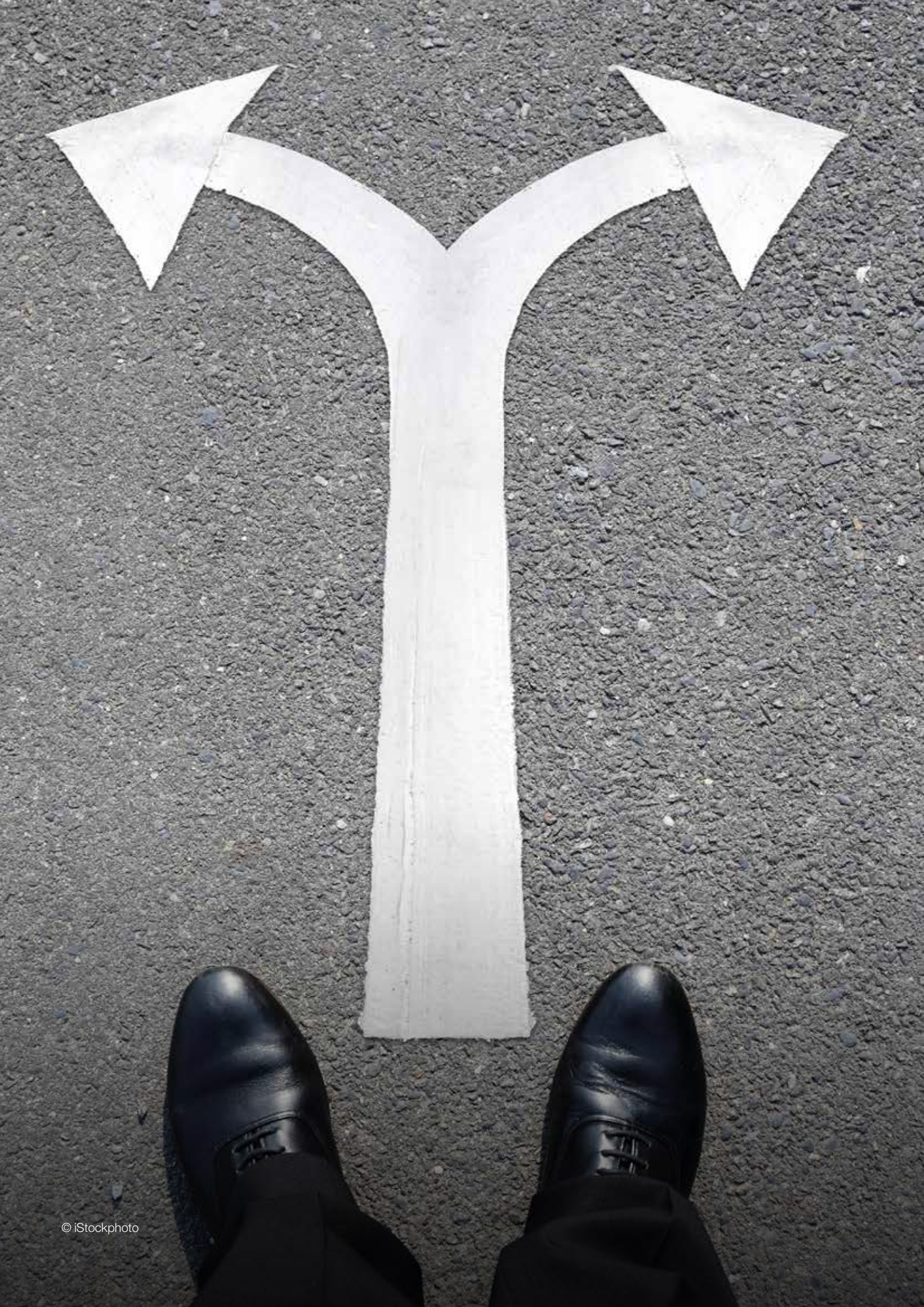

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5. LEARNING TO LIVE WITH DEBT

For more than 2,000 years, debt has been an invaluable means of funding the investments required for economic development. However, the economic history of the past several hundred years is replete with examples of how excessive debt repeatedly leads to financial crises.[88] As we have seen in the previous chapters, nations reduce total debt relative to GDP only rarely, and debt ratios around the world today continue to rise. There has been much discussion about the maximum level of public and private debt a country can sustain, with no clear answer so far.[89] Whatever that limit is, a clear challenge today is to develop better tools to monitor and manage debt to avoid highly destructive boom-bust credit cycles and resolve bad debt with the least disruption to the economy. It may also be desirable to find ways of reducing reliance on debt by removing incentives that favor debt over equity financing, and to use countercyclical policies to slow growth in debt when leverage of the overall economy is rising rapidly.

A clear challenge today is to develop better tools to monitor and manage debt, avoid highly destructive boom-bust credit cycles, and resolve bad debt with the least disruption to the economy.

Learning to live safely with debt is critical not only for the advanced economies that today have unprecedented levels of debt, but also for developing economies. With a few exceptions, developing nations today have much lower ratios of debt to GDP than advanced economies. Nonetheless, they can learn from the mistakes made by advanced economies and create the policies necessary to safely manage debt.

Significant progress has been made since the 2008 crisis in making the global financial system more stable. Banks today have more capital and less leverage, and advanced economies have put in place processes to monitor systemic risk. The Financial Stability Board, the Basel Committee on Banking Supervision, national regulators, and other institutions have done important work to reduce systemic risk. Still, opportunities exist to further reduce the risk of financial crises through innovations to manage debt more effectively, avoid dangerous leverage, and decrease excess debt when necessary. We offer eight ideas to start further discussion and public debate.

Encourage innovation in mortgage contracts

How debt contracts are written matters a great deal. Better risk-sharing features of household debt can make repayment more flexible when borrower circumstances or economic conditions change and can avoid the costly option of default. This is particularly important for mortgages, given the negative externalities of foreclosure on the prices of nearby homes and neighborhoods. Innovations in mortgage contracts would require

[88] See Carmen M. Reinhart and Kenneth S. Rogoff, *This time is different: Eight centuries of financial folly*, Princeton University Press, 2009.

[89] For instance, see Stephen G. Cecchetti, M. S. Mohanty, and Fabrizio Zampolli, *The real effects of debt*, BIS working paper number 352, September 2011; see also Carmen M. Reinhart, Vincent R. Reinhart, and Kenneth S. Rogoff, "Public debt overhangs: Advanced economy episodes since 1800," volume 26, number 3, *Journal of Economic Perspectives*, volume 26, number 3, Summer 2012.

action by the private sector, but public policy may be needed to enable and encourage this development, too. Several types of innovations warrant further discussion and exploration.

One approach would be to include an insurance element in debt contracts, making automatic adjustments in repayment schedules contingent upon specific events, such as job loss or indicators of economic recession and rising unemployment.[90] Economist Robert J. Shiller has proposed creation of "continuous workout mortgages," which are structured to adapt to changing conditions—in the economy or the household—over the course of a loan to keep payments at a level that the borrower can afford.[91] In such mortgages, changes in the monthly payment (and in the mortgage balance) could be triggered by events such as a significant changes in home prices, job loss, or recession. Payments would revert to the original level when conditions improve. The continuous workout mortgage would reduce the need for borrowers to exercise the costly option of default to alleviate debt and would guarantee lenders a stream of continuous payments, while sharing the underlying risk with the borrower. The automatic adjustment mechanisms of the mortgage would avoid costly—and possibly repeated—negotiations between borrowers and lenders.

How effective this approach would be depends on the level of participation. Contracts would be voluntary, and both borrowers and lenders would understand what their commitments are at the time of signing. However, many borrowers might be disinclined to pay for such insurance, particularly during boom times. In the interest of financial system stability, policy makers could, if they chose, create tax incentives for such mortgages. There are precedents for such flexibility in other types of debt contracts. For example, in the United Kingdom and Australia, student loan payments are capped at a certain percentage of the borrower's income, so that payments rise along with incomes.

Another approach would introduce an equity-like element of risk sharing into a home purchase. For instance, economists Atif Mian and Amir Sufi have suggested "shared responsibility" mortgages, in which lenders and borrowers alike face the upside and downside of fluctuating real estate prices.[92] If home prices in the surrounding community decline below the purchase price of the home, the borrower's payment is reduced by a similar percentage. When prices recover, the payments revert to the original rate and the lender is entitled to 5 percent of the capital gain when the borrower sells. The objective is to avoid foreclosure by automatically adjusting loan payments during tough economic conditions.

Clearly there are challenges to implementing risk-sharing features in mortgage contracts. One is moral hazard. Also, interest rates on such loans would likely be higher than on conventional loans, given the additional risk borne by the lender. However, important positive externalities accrue to the broader economy and surrounding community: avoiding forced sales of homes and associated litigation, as well as degradation of properties and neighborhood blight—which can lead to additional losses for mortgage lenders and other homeowners. The talent for financial innovation that helped create esoteric and exotic mortgage-based securities prior to the crisis could be harnessed to create mortgages and other debt contracts that cause less damage during recessions or times of borrower financial distress.

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[90] Any insurance scheme would require careful oversight to ensure transparency into costs and benefits. In the United Kingdom, a court prohibited bundling of payments protection insurance with home mortgages and other consumer loans after widespread complaints of mis-selling. See John K. Ashton and Robert S. Hudson, "The mis-selling of payments protection insurance in mortgage and unsecured lending markets," in *Modern Bank Behaviour*, José Pastor Monsalvez and Jan Fenández de Guevara Radopselovic, eds., Palgrave McMillan, 2013.

[91] Robert J. Shiller et al., *Continuous workout mortgages*, NBER working paper number 17007, May 2011.

[92] Ibid. Atif Mian and Amir Sufi, *House of debt*, 2014.

Improve processes for private-sector debt restructuring

Sometimes default on debt may be unavoidable, particularly in cases where changes to borrower incomes are long-term or permanent. Clear and efficient mechanisms for restructuring or discharging bad debt can minimize the damage of default to borrowers, lenders, and the overall economy. For households, rules governing mortgage default or restructuring matter greatly. There are very different implications for non-recourse loans (in which the lender cannot seize other assets or future income of the borrower) and recourse loans (in which the lender can). Most countries have recourse mortgages, with the United States as an exception. Recourse mortgages provide strong protections to creditors and make it very difficult for borrowers to walk away from their housing debt, which would put their other assets at risk. Borrowers, therefore, have incentives to avoid excessive leverage and continue to make loan repayments under all circumstances.

From an economic perspective, however, recourse loans have the unwanted effect of deepening recessions, by forcing struggling households to make loan payments even if it requires sharply reducing consumption. By allowing overly indebted borrowers to default and extinguish their debts, non-recourse loans can lessen the severity of a recession and aid recovery by enabling households to reestablish themselves in less expensive housing and quickly resume normal consumption (of course, there is also the impact of the bank's loss, which could inhibit new lending). In addition, empirically we see that household deleveraging occurs fastest in countries with non-recourse mortgages, clearing the way for recovery. The United States is a case in point.[93]

However, non-recourse mortgages have their drawbacks, too. They may encourage borrowers to take on more debt—particularly during a housing boom—with the knowledge that they can walk away from the debt if necessary. Moreover, borrowers can choose to default even if they can afford to repay loans if the value of their property falls below the amount of the mortgage. In the recent recession, however, this was rare: 13.9 percent of US mortgage defaults were "strategic defaults."[94] To counter the incentive to borrow too much, non-recourse mortgages could be combined with conservative limits on loan-to-value ratios and countercyclical macroprudential rules to dampen new lending during credit booms.

Another option for debt restructuring is the "strip-down." Prior to the 1980s, US households facing bankruptcy were eligible for a mortgage strip-down, under which the court could order a modification of the loan agreement to reduce servicing costs and avoid foreclosure. A series of court decisions culminating in a Supreme Court ruling in 1993 abolished this practice. After the US housing bubble collapsed, the Obama administration proposed restoring the strip-down option in Chapter 13 bankruptcies and also proposed a loan-modification program under which lenders would have financial incentives to reduce mortgage payments to a certain share of income. While the strip-down has benefits, including reducing household indebtedness and reducing the effects of housing defaults on consumption, there are trade-offs. As in the mortgage innovations discussed above, strip-downs could cause lenders to reduce the supply of credit or raise its price.[95]

In reality, treatment of mortgage defaults is often more a function of practice than of contractual requirements. Ireland, for example, has recourse mortgages but has achieved an even larger reduction in household debt relative to income than the United States by pursuing a broad program of loan modifications. As of June 2014, 102,000 mortgages

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93 In the United States, mortgages are recourse loans in many states. However, in practice, lenders rarely pursue the other assets of borrowers, given the cost of doing so and the bad publicity that ensues.

94 Ibid. Kristopher Gerardi et al., *Unemployment, negative equity, and strategic default*, August 2013.

95 Research by the Federal Reserve Bank of Philadelphia found that the abolition of strip-down in Chapter 13 and Chapter 7 bankruptcies had conflicting effects on loan approvals and interest rates. Wenli Li, Ishani Tewari, and Michelle J. White, *Using bankruptcy to reduce foreclosures: Does strip-down of mortgages affect the supply of mortgage credit?* Federal Reserve Bank of Philadelphia working paper number 14–35, December 2014.

(13 percent of Ireland's total) had been restructured through a variety of mechanisms, including temporary suspension of repayments, interest-only loans, maturity extensions, and principal reduction.[96] These restructurings have helped Irish households deleverage and find more sustainable levels of debt. However, large-scale mortgage modifications are difficult to execute efficiently.

Large-scale loan restructuring requires both significant investments in operations to review requests and the agreement of lenders. In Ireland, securing lender cooperation was less of a challenge since the government had become a major shareholder in all three of the country's large banks. The mortgage contract approaches discussed above that enable automatic adjustment of payment terms are more feasible for large countries or in cases where mortgages are packaged into securitized assets and there is not a single lender to negotiate with.

For corporate debt, a clear, consistent, and expeditious bankruptcy system is essential to enable businesses to restructure and move ahead. Efficient business bankruptcy processes are important not only for helping reduce leverage in the private sector, but also because they can increase market efficiency by removing inefficient competitors. In addition, they can promote innovation by giving entrepreneurs an opportunity to recover quickly from failure.[97] Virtually all countries have bankruptcy codes today, at least on paper. However, refinements may be warranted in some countries to strengthen the protections for creditors. In many more countries, efficiently applying the laws on the books remains a challenge.

Use macroprudential tools to dampen credit cycles

Across countries and throughout time, we have seen that, given the opportunity, some borrowers will take on too much debt. Whether it is a household with unrealistic expectations of uninterrupted employment and rising wages that takes on a too-large mortgage to buy a dream home or a business that is expanding aggressively even as overcapacity builds in its industry, borrowers frequently underestimate the downside risks of debt and overestimate both the potential increase in value in their assets and their ability to repay—especially at the peak of the business cycle. The challenge is for policy makers to protect their economies from the inevitable bad judgments of some borrowers (and lenders) without unduly limiting the flow of debt to sustain healthy growth.

Applying macroprudential policies such as counter-cyclical reserve requirements on banks can help achieve this goal. This means assessing the systemic risk of lending decisions in addition to the risk to the individual lender (the more traditional microprudential view). Since the 2008 financial crisis, there has been a growing recognition that governments can and should apply macroprudential tools to ensure more stable credit growth. Regulators in major economies today do so to varying degrees. They can, for example, impose limits on loan-to-value ratios for mortgages that vary over time, becoming more stringent during periods of rising housing prices and looser during downturns. Other policies can discourage or prohibit certain types of risky mortgages, such as interest-only loans. And countercyclical measures can slow the pace of lending when debt is rising too rapidly by imposing higher capital requirements on banks.

Today, the focus of macroprudential policies has been on the stability of the financial system. However, these policies could also take into account the overall amount of leverage in the economy. When total debt in a country is high relative to income, individual loans that may be prudent in other situations can contribute significantly to systemic risk. Assessing a broad range of indicators when applying macroprudential policies is warranted.

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[96] Central Bank of Ireland statistical release, *Residential mortgage arrears and repossessions statistics: Q2 2014*, September 2, 2014.

[97] Viral V. Acharya and Krishnamurthy V. Subramanian, "Bankruptcy codes and innovation," *The Review of Financial Studies*, volume 22, number 12, April 2009.

Reduce tax incentives for debt

Tax preferences for debt, and especially for residential real estate mortgages, deserve renewed public discussion. The explicit and implicit incentives that governments provide for real estate vary widely across countries, but they include tax deductibility of mortgage interest and preferential treatment of capital gains on residential properties. The social objectives of such policies are to promote homeownership, which, it is argued, enhances social stability and civic engagement. But the disproportionate role of real estate bubbles in financial crises shows clearly the negative externalities of mortgage borrowing. In addition, questions have been raised about the fairness of such policies, which benefit high-income households disproportionately and, as we have seen, have encouraged the wealthiest households in some countries to leverage high-cost homes to maximize tax benefits.

Tax preferences for debt, and especially for residential real estate mortgages, deserve renewed public discussion.

Policy makers can therefore reconsider the mix of incentives provided for residential housing and balance the social goal of homeownership against other needs, such as investments in infrastructure, education, or research and development that would enhance the long-term productive capacity of the economy. Reducing or phasing out some of the incentives should be debated. The right answer will differ by country. While making such changes could be politically difficult, some countries have done so, such as the United Kingdom, which ended mortgage interest deductions.

Reforming the corporate tax code is even more politically fraught, with winners and losers to any policy change. Nonetheless, the tax incentives for corporations to issue debt could also be reconsidered to create a more level playing field between debt and equity financing. The corporate tax code in most developed economies makes interest payments—but not dividend payouts—deductible from corporate income taxes. Removing this bias could shift the capital structures of firms away from debt.[98] Moreover, removing the tax deductibility of corporate debt payments might encourage businesses to invest less in capital equipment and more in hiring workers. In an era of slow job creation, this bias toward labor over capital may be desirable.

While eliminating the deductibility of interest would effectively raise corporate tax rates, that move could be offset by a lower marginal rate. An alternative reform would be to allow corporations to deduct dividends from profits in calculating their corporate tax liabilities. This allowance might encourage companies to pay dividends rather than pursue share buybacks to boost stock prices. To avoid worsening fiscal deficits, this reform might be accompanied by other tax reforms to ensure the package is revenue neutral (although there would still be distributional effects).

Consider a broader range of tools for resolving sovereign debt

For the most indebted governments today, neither promoting economic growth nor pursuing fiscal austerity alone is a plausible solution for deleveraging, given the magnitude of change needed.[99] A broader range of debt resolution mechanisms for governments may be needed. While significant government debt write-offs are considered unthinkable for major economies today, the past ten years have shown that a range of sovereign debt

[98] See Ruud de Mooij, *Tax biases to debt finance: Assessing the problem, finding solutions*, IMF staff discussion note number 11/11, May 2011.

[99] This analysis is described in more detail in Chapter 1.

restructuring options is available, and many countries have successfully rescheduled debt. At the most damaging and costly end of the continuum is a unilateral default without good-faith negotiations with creditors, such as Argentina pursued in 2002. In such cases, defaulting borrowers have been shut out of international capital markets for many years, and the financial chaos after the default created severe recessions. But Greece in 2012 achieved a partial debt restructuring, involving negotiations with all creditors and resulting in a restructuring of debt held by private creditors. Although Greece has also suffered from a lengthy and steep recession, its government debt service payments have been around 4.3 percent of GDP—only slightly higher than the 3.9 percent of GDP of US government debt service.

In considering options for sovereign debt restructuring, it matters critically whether debt is held by external creditors (foreign parties) or domestic creditors, and whether the debt has been issued in local or foreign currencies. For restructuring external debt, one key difficulty may be the sheer number of creditors. Collective action clauses can aid governments in negotiating with bondholders and preventing a handful of creditors from derailing resolution or holding out for full repayment. Such clauses have long been a feature of sovereign bonds issued in the United Kingdom and have been regarded as standard for bonds issued to foreign investors in other jurisdictions more recently.[100] Collective action clauses are intended to facilitate orderly restructuring by forcing all bondholders to agree to a majority vote for modification. However, current collective action clauses suffer from several weaknesses, and the IMF has proposed reforms to aid future government debt restructuring.[101] One proposed reform is for creditors to vote on restructuring of all bond issues, rather than requiring separate votes on each issue.

For sovereign debt held primarily by internal creditors, any government debt restructuring can force heavy losses on domestic banks, pension funds, and other local investors, which can have harsh effects on retirees and the broader population. Governments could avoid these broad-based repercussions by pursuing more targeted measures to raise revenue in order to avoid debt restructuring. For instance, taxes on wealth or large-scale asset sales could be considered as means to pay off debt. Pursuing any of these options could present political challenges. Historically, it has been rare for governments to restructure domestically held debt outright (although Argentina effectively did this when it broke the peso-dollar peg in 2002, resulting in a massive currency depreciation).

Another option is to rethink how central bank holdings of government debt are treated in any analysis of debt sustainability. Today, the central banks of the United States, the United Kingdom, and Japan have accumulated large positions in their nations' government debt as a result of quantitative easing policies, holding 16, 24, and 22 percent, respectively, of government bonds outstanding. While the United States and the United Kingdom are ending new bond purchases for now, they maintain their existing holdings by purchasing new ones when bonds mature. The Bank of Japan is actively increasing its holdings of government bonds and has raised the maximum amount of government bonds it is allowed to buy each year from ¥50 trillion to ¥80 trillion ($417 billion to $667 billion). If it continues to pursue this policy for three years, we estimate that it would own 40 percent of Japan's outstanding government bonds. In January 2015, the European Central Bank announced plans to begin purchasing up to €720 billion ($840 billion) of sovereign bonds per year.

[100] W. Mark C. Weidemaier and Mitu Gulati, "A people's history of collective action clauses," *Virginia Journal of International Law*, volume 54, number 1, 2014.

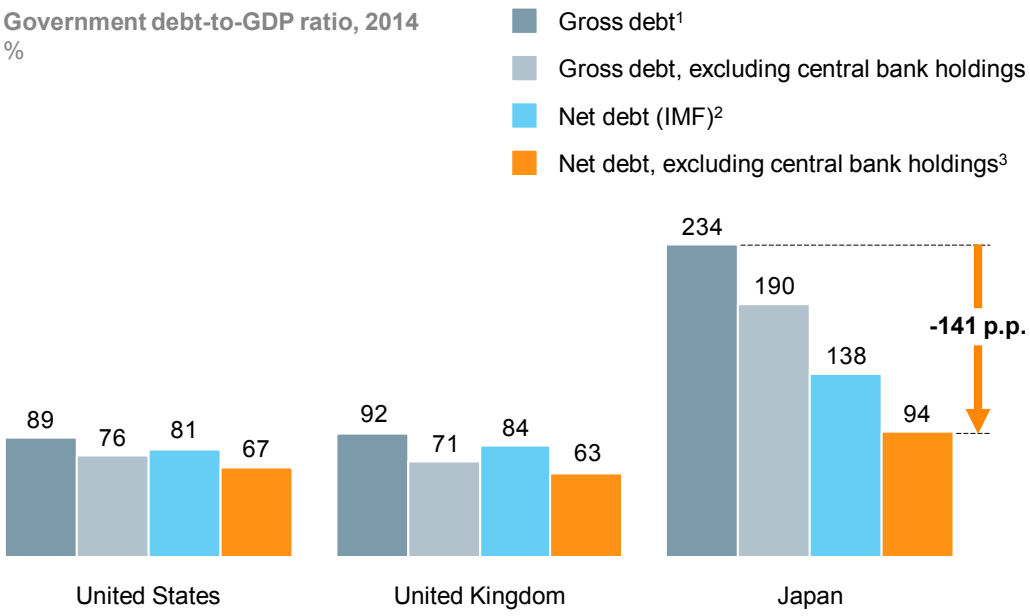
[101] *Strengthening the contractual framework to address collective action problems in sovereign debt restructuring*, IMF staff paper, September 2014.

But does government debt owned by the central bank (or any other government agency) pose the same risk as bonds owned by private creditors? In a sense, this debt is merely an accounting entry, representing a claim by one part of the government on another. Moreover, interest payments on this debt are typically remitted to the national treasury, so the government is effectively paying itself. In assessing the risk and sustainability of government debt, it is the size of net public debt (excluding holdings by government agencies) rather than the gross debt figures cited in this report and elsewhere that really matters. Focusing on net debt provides a very different picture of government leverage in some countries. The IMF reports net debt figures for governments, excluding debt held by government agencies but not central bank holdings of bonds.[102] If we also exclude bonds owned by central banks, the government debt-to-GDP ratio in the United States declines from a gross level of 89 percent to 67 percent, and falls from 92 percent to 63 percent in the United Kingdom, and from 234 percent to just 94 percent in Japan (Exhibit 44).

Exhibit 44

Net government debt is significantly less than gross debt, especially in Japan

Government debt-to-GDP ratio, 2014
%



1 2Q14 gross debt-to-GDP ratio from MGI Country Debt database.
2 2014 net debt-to-GDP estimates from IMF's World Economic Outlook database.
3 IMF's net debt figures for 2014, less government securities held by central bank as of 2Q14.
NOTE: Numbers may not sum due to rounding.

SOURCE: MGI Country Debt database; IMF; McKinsey Global Institute analysis

Whether central banks could cancel their government debt holdings—without putting the government legally into default or sparking a loss of confidence and market turmoil—is unclear. Any write-down in their value would wipe out the central banks' capital. While this would have no real economic consequence, it would likely create financial market turmoil.[103] Another option that has been suggested is to replace the government debt on the central

[102] In the IMF definition of net debt, the bonds and other debt liabilities owned by government agencies such as pension programs are excluded. These agencies may have liabilities, which raises the possibility that they may sell the debt or let it mature and seek repayment in the future. Central banks, in contrast, have no liabilities. Therefore, an alternative definition of net government debt might exclude central bank holdings of government bonds but not debt held by government agencies such as retirement programs.

[103] Central banks cannot become insolvent, given that they can print money. Economists have long recognized this. As a consequence, Ben Bernanke noted in a speech prior to becoming the Federal Reserve chairman that the "balance sheet of the central bank should be of marginal relevance at best to the determination of monetary policy." See Ben Bernanke, "Some thoughts on monetary policy in Japan," remarks to the Japan Society of Monetary Economics in Tokyo, May 31, 2003.

bank's balance sheet with a zero-coupon perpetual bond.[104] Although the market value of such a bond would be zero, central banks are not required to mark their assets to market. Still, any such move could create backlash in the markets and, in some countries, by policy makers. Therefore, a simpler but equivalent measure would be for central banks to simply hold the government debt they have accumulated in perpetuity and for the broader public to shift its focus to net debt rather than gross debt.

Improve data collection and monitoring of debt

With a clear and timely understanding of how credit is being issued and used, it is possible to identify emerging risks and act on them before they can trigger financial crises. In the age of big data it should be possible, for example, to develop granular, real-time data on the liabilities, assets, and incomes of individual borrowers. This will enable regulators and lenders to understand at a household or corporate level not only how much debt is being accumulated, but also how it is being used, and whether the borrower is still capable of repaying. This may require some cooperation between private and public sources of data. Governments, for example, could develop ways of providing anonymized data from income tax returns (with privacy guarantees for households and businesses). Banks could also be required to share anonymized client data.

Another approach, which has been used in Germany, is to create a central credit register that captures data about all loans over a certain value from various institutions. Updated aggregated data on the indebtedness of individual borrowers is then relayed to relevant institutions. Both supervisory authorities and reporting institutions benefit tremendously from such a mechanism, with the regulators gaining a comprehensive overview of the status of large borrowers and the lenders benefiting from the ability to assess in real time the creditworthiness of their actual and potential clients. This can help them improve loan portfolio quality and, in turn, improve financial system stability. Such credit registers are used in a range of countries and, given today's technology, this resource could be deployed more broadly (with proper privacy safeguards) to gather information on all sorts of credit.

Create a healthy mix of bank and non-bank credit sources

As we have discussed, non-bank lending credit plays a large role in providing capital to the private sector. At a time when banks remain constrained in their lending capacity, non-bank credit can be an important resource for the economy. There are at least three key priorities for action in this regard.

First is to further develop corporate bond markets. Companies in the United States, Europe, and emerging markets have all issued record amounts of corporate bonds since 2008. Still, more room exists for bond market development in Europe and in emerging markets. Traded bonds are issued by only the largest companies, but private placements can be used to give smaller companies access to bond investors.[105] Concerted efforts by policy makers can promote development of corporate bond markets. South Korea, for example, developed one of the world's largest corporate bond markets (relative to GDP) after the 1997 Asian financial crisis. The value of corporate bonds rose from 21 percent of GDP in 1993 to 45 percent by 2002. To function effectively, such markets need a yield curve set by regular government bond issuance, ratings by independent agencies, an efficient bankruptcy system and laws to protect creditors, and demand from institutional investors. Private placements are the best way for smaller companies to issue bonds, allowing pension funds, insurers, and other institutions to provide credit to them directly.

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[104] Adair Turner, "Printing money to fund deficit is the fastest way to raise rates," *Financial Times*, November 10, 2014.

[105] In the United States and Europe, earlier MGI research found that more than 80 percent of bond issues are for $100 million or more and that 80 percent of companies that issue bonds have revenue of $500 million or more. This is true for both high-yield and investment-grade bonds. See *Financial globalization: Retreat or reset?* McKinsey Global Institute, April 2013.

Although securitization earned a bad reputation in the 2008 financial crisis, a second opportunity in non-bank credit is to encourage "plain vanilla" securitization.[106] Securitization of mortgage debt began with a simple goal—to provide greater liquidity to the home mortgage market—and it can still perform this important function for a range of borrowers. "Plain vanilla" securitization involves a simple pass-through of pools of mortgage obligations into marketable securities, a practice that has been used by Fannie Mae and Freddie Mac in the United States for decades and has proven sustainable. In this simple form of securitization, the underlying quality of loans is high and risks are diversified. All investors in the securitization bear the same risk. What proved to be unsustainable were opaque packages of loans of varying quality, complex tranching of risks, and the exotic instruments derived from these securities.

Public agencies, or quasi-public agencies such as Fannie Mae, may be well suited to pursue plain-vanilla securitization. The private sector can also perform securitization, but with regulations to avoid the problem that arose before the crisis: pooling of poor quality loans and disguising underlying risks. National regulations on loan quality for securitizations could be developed. A requirement for issuers of mortgage-backed securities to hold some of the securities and not hedge the credit risk has been adopted by some countries since the crisis and is important. In today's environment, securitizations could help promote lending far beyond mortgages: for instance, for SMEs and for education.

Finally, it is important to strengthen reporting standards and monitoring of non-bank intermediaries. The variety of non-bank lenders makes it challenging to determine where debt is being issued, the quality of loan underwriting, and total exposure of borrowers. While some non-bank credit providers—such as finance and leasing companies, insurers, and government programs—have been around for years, new types of lenders continue to emerge, and their evolution should be monitored closely. The Financial Stability Board has been working since 2009 on a methodology for creating reporting standards for the broader shadow banking system and, more critically, for a refined measure of credit-related shadow banking activities. This important effort should continue.

Promote financial deepening in developing economies

Developing economies today have significant funding needs to build infrastructure, housing, and their industrial bases. As the wealth of these nations grows, there should be commensurate financial deepening, with broader access to more varied types of financing instruments and a broader range of financial institutions. This includes development of public capital markets for both equity and debt; housing finance and mortgage markets; pension funds and insurance companies to create demand in the market; and a range of other mutual funds and asset management options.

There are additional requirements for effective financial markets: a sound legal system that offers efficient bankruptcy proceedings and protection of creditor and minority shareholder rights, a framework for transparent accounting and financial reporting, credit rating agencies for both businesses and households, and a robust set of financial market supervisors and regulators. All of these institutions take time to develop. Most developing economies today have created these institutions, but the challenge is to ensure their effective operation. Following lessons from the 2008 crisis, the process of financial deepening also needs to be guided by policies that promote safe lending and provide protections for creditors, borrowers, and investors. Often, citizen access to financial services in developing economies is very limited. Countries can encourage the development of a full range of financial options for their citizens—mutual funds, exchange-traded funds, and other instruments—that can help them build wealth.

[106] This is in contrast to the subprime securitizations and complex instruments created out of mortgage-backed securities prior to the crisis.

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APPENDIX: TECHNICAL NOTES

These technical notes provide additional detail on the definitions and methodologies employed in this report. Specifically, the notes expand on the following points:

1. Methodology for compiling time series of debt-to-GDP ratios
2. Methodology for compiling data on shadow banking and non-bank credit
3. Methodology for compiling time series of debt in China

1. Methodology for compiling time series of debt-to-GDP ratios

In this research, we compiled a time series of debt relative to GDP by sector for a sample of 47 economies: 22 advanced and 25 developing. We follow the methodology used in our earlier reports on debt and deleveraging (2010 and 2012), drawing extensively on national balance sheet statistics published by central banks in their flow of funds or financial accounts.[107] Following the methodology of the US Federal Reserve System, we count as debt those instruments that constitute direct credit market borrowing (Exhibit A1). This includes all traded debt instruments, including commercial paper, and all loans regardless of lender. We exclude accounts payable of companies and their pension liabilities, mutual fund shares, beneficiary certificates, and all other equity-type funds, as well as all types of deposits. We also exclude derivatives and repurchase agreements. For the financial sector, we exclude short-term, interbank lending. For governments, we exclude lending by one branch of the government to another, unless it is through a marketable debt security (for instance, we include government bonds bought by central banks).

Exhibit A1

Our definition of "debt" covers credit market instruments: loans and bonds

Sector	Includes	Excludes
Households	▪ Home mortgages ▪ Home equity loans ▪ Consumer credit ▪ Other loans (e.g., student loans)	▪ All accounts payable ▪ All financial and physical assets
Non-financial corporations	▪ Commercial paper and corporate bonds issued ▪ Loans from banks and other sectors	▪ All accounts payable ▪ Pension liabilities
Financial institutions	▪ Commercial paper, loans, and bonds issued by banks and other parts of financial sector (e.g., broker-dealers, special-purpose vehicles, insurers)	▪ Mortgage- and asset-backed securities (e.g., liabilities of Fannie Mae and Freddie Mac in the United States) ▪ Short-term interbank borrowing ▪ Retail and corporate deposits, central bank deposits
Government	▪ Central government bonds and loans ▪ State, local, and municipal government bonds and loans	▪ Loans from one branch of government to another ▪ Unfunded pension liabilities

SOURCE: McKinsey Global Institute analysis

To define the entities included in each sector, we have followed the System of National Accounts, a standard adopted by most central banks. Under this standard, a nation's household sector includes resident households, non-profit institutions serving households, and private unincorporated businesses.[108] The non-financial corporate sector of a country includes all resident companies not operating in the financial sector, regardless of whether they are publicly or privately held. This category also includes so-called quasi-corporations, such as partnerships; state-owned enterprises; and legally incorporated affiliates of foreign companies.

[107] *Debt and deleveraging: Uneven progress on the path to growth*, McKinsey Global Institute, January 2012.

[108] In the case of Canada, this category also includes non-financial, non-corporate business. Thus, Canada's household debt levels appear somewhat higher than those of other countries.

Our figures on government debt capture credit market borrowing of governments at all levels—national, state/provincial, and local—as reported by national central banks or finance ministries. This typically takes in all bond market issuance, including local and municipal government bonds, as well as loans to government. We exclude borrowing by state-owned enterprises, since it is captured in the non-financial corporate sector.

We also collect debt issued by financial institutions, although we treat this borrowing separately from debt of households, companies, and governments. Because debt of financial institutions is often used to lend to other sectors, it could be considered double counting to include it in a nation's total debt. However, it is also too large to ignore entirely: financial institutions around the world have $45 trillion of debt outstanding. From a systemic risk perspective, financial-sector debt matters. The financial sector includes a broad range of financial institutions, among them central banks, all deposit-taking institutions, and many non-deposit-taking institutions such as broker-dealers, finance companies, public financial agencies, and financial auxiliaries such as stock exchanges. We count as debt all medium- and long-term bonds that banks and other participants in the financial system issue to finance their activities. Our financial-sector debt figures exclude all retail and corporate deposits, deposits at the central bank, and short-term interbank borrowing.

After compiling data on financial-sector debt, we adjust officially reported figures of debt issued by financial institutions by removing securitizations issued by these entities. We do this to avoid double counting, since the underlying loans in the securitizations are already counted as debt in the relevant sector. The possible drawback to this approach is that it may not provide a full picture of financial-sector liabilities. In the United States, for example, the liabilities of Fannie Mae and Freddie Mac are largely excluded from our financial-sector debt figures, since the bonds they issue cover mortgage lending that we count in the household sector. Whenever possible, we rely on central bank data on the size of securitization markets to make these adjustments. Where such data are unavailable, we use data from the Securities Industry and Financial Markets Association (SIFMA), the Association for Financial Markets in Europe, and Dealogic to create our own estimates of outstanding asset-backed securities in each country.

For developing economies, we derive our estimates of debt from a variety of sources, since most countries lack comprehensive flow of funds accounts. These include data on domestic bank loans from central banks, figures on domestic private credit from the International Monetary Fund's International Financial Statistics, and data on outstanding bonds and external loans from the Bank for International Settlements.

For the GDP figures of each country, we use seasonally adjusted quarterly GDP data, following the methodology of the US Department of Commerce's Bureau of Economic Analysis. When comparing our quarterly GDP estimates with annual estimates, this may result in small differences in the aggregate ratio of debt to GDP.

Exhibit A2 shows the debt-to-GDP ratio by sector for all countries in our database, as of the second quarter of 2014 (or latest available).

Exhibit A2

Debt-to-GDP ratio by country and sector

Ranked by decreasing real economy debt-to-GDP ratio, 2Q14[1]

Advanced economy
Developing economy
1st quartile
2nd quartile
3rd quartile
4th quartile

Rank	Country	Debt-to-GDP ratio[1] %	Real economy debt-to-GDP ratio by sector %			Financial-sector debt-to-GDP ratio
			Government	Corporate	Household	
1	Japan	400	234	101	65	117
2	Ireland	390	115	189	85	291
3	Singapore	382	105	201	76	246
4	Portugal	358	148	127	83	81
5	Belgium	327	135	136	56	75
6	Netherlands	325	83	127	115	362
7	Greece	317	183	68	65	5
8	Spain	313	132	108	73	89
9	Denmark	302	60	114	129	235
10	Sweden	290	42	165	82	125
11	France	280	104	121	56	93
12	Italy	259	139	77	43	76
13	United Kingdom	252	92	74	86	183
14	Norway	244	34	86	124	93
15	Finland	238	65	108	64	59
16	United States	233	89	67	77	36
17	South Korea	231	44	105	81	56
18	Hungary	225	83	114	29	51
19	Austria	225	87	88	50	80
20	Malaysia	222	55	91	76	42
21	Canada	221	70	60	92	25
22	China	217	55	125	38	65
23	Australia	213	31	69	113	61
24	Germany	188	80	54	54	70
25	Thailand	187	46	65	76	64
26	Israel	178	67	73	38	12
27	Slovakia	151	67	52	32	9
28	Vietnam	146	50	76	19	6
29	Morocco	136	62	51	23	15
30	Chile	136	15	86	36	40
31	Poland	134	57	42	35	20
32	South Africa	133	45	49	39	21
33	Czech Republic	128	47	49	33	23
34	Brazil	128	65	38	25	32
35	India	120	66	45	9	15
36	Philippines	116	40	71	6	12
37	Egypt	106	77	23	6	2
38	Turkey	104	35	47	22	29
39	Romania	104	38	47	19	7
40	Indonesia	88	22	46	20	21
41	Colombia	76	32	30	15	6
42	Mexico	73	44	22	7	20
43	Russia	65	9	40	16	23
44	Peru	62	19	29	15	8
45	Saudi Arabia	59	3	43	13	6
46	Nigeria	46	20	22	4	3
47	Argentina	33	19	9	5	7

1 Includes debt of households, non-financial corporations, and government; 2Q14 data for advanced economies and China; 2013 data for other developing economies.

SOURCE: *World economic outlook*, IMF; BIS; Haver Analytics; national central banks; McKinsey Global Institute analysis

2. Methodology for compiling data on shadow banking and non-bank credit

To understand the scope of shadow banking and non-bank credit, we focus on credit provided to the private sector (households and non-financial corporations) in ten advanced economies and China.[109] Together these account for 85 percent of household debt and 80 percent of non-financial corporate debt in the 47 countries in our database.

Defining shadow banking

Since the 2008 financial crisis, there has been growing interest in financing activities that took place outside of the regulated banking system. Definitions of what constitutes shadow banking vary but typically encompass a wide array of activities and entities that are less regulated than commercial banks and lack the safety net provided to banks by central banks and national governments. The two most prominent definitions, from the Financial Stability Board (FSB) and the International Monetary Fund, emphasize different aspects.

The Financial Stability Board defines shadow banking as credit intermediation involving entities and activities outside the regular banking system (FSB 2014). In response to a 2011 request by the G20 to assess shadow banking activities, the FSB performs an annual assessment of the size of the shadow banking system (according to the FSB's definition). This assessment is based on balance sheet data of other financial intermediaries (OFIs) and provides two measures of the global size of the shadow banking universe. The broad measure is a conservative proxy based on global financial assets of OFIs and shows that non-bank financial intermediation grew by $5 trillion, or 7 percent, to reach $75 trillion in 2013. The narrow measure uses more granular data reported by 23 jurisdictions and results in a size of $35 trillion with an annual growth rate of 2.4 percent.[110] The second measure tries to come closer to credit intermediation by eliminating assets related to self-securitization, banking group consolidation, and entities not directly involved in credit intermediation, such as equity investment funds, equity real estate investment trusts, and intra-group funding entities. Subsectors that showed the most rapid annual growth in 2013 were trust companies (42 percent) and other investment funds (18 percent). Hedge funds remain significantly underestimated due to domiciles in offshore financial centers currently not within the scope of the assessment, as noted by the FSB. Advanced economies continue to have the largest non-bank financial systems, while emerging markets showed the most growth (more than 10 percent), but from a relatively small base.

The IMF published a comprehensive report on shadow banking in October 2014 as part of its annual Global Financial Stability Report. Its definition focuses on an "activity" concept based on non-traditional funding sources (explicitly including securitization irrespective of a balance sheet view). Size estimates range from $35 trillion to $55 trillion in 2013 for the proposed three measures (a flow of funds measure and both broad and narrow non-core liabilities measures). In comparison with the growth noted in the FSB data, the IMF report shows a fairly constant level of shadow banking, reflecting two opposing forces—a decline in securitizations and repurchase agreements, and a rise in country-specific entities.

The approach adopted in this report combines the two views. We define shadow banking as the set of entities and instruments that together created increasingly long, complex, and opaque credit intermediation chains prior to the financial crisis. This includes the securitization and structured credit products created by banks and off-balance sheet vehicles, special-purpose vehicles and structured investment vehicles, credit default swaps, money market funds, and repurchase agreements. As the 2008 global financial crisis

[109] Australia, Canada, France, Germany, Japan, the Netherlands, South Korea, Spain, the United Kingdom, and the United States. We use the following SNA-2008 sector classifications: household sector includes households (S.14) and non-profit institutions serving households (S.15), while non-financial corporations (S.11) includes private and public enterprises (since SNA-2008 this sector excludes holding companies and captive financial institutions previously included under SNA-1993).

[110] Corresponding to a base of $62 trillion for the same set of countries under the broad measure.

revealed, these entities and instruments were heavily used by and interconnected with the formal banking system, leading to the near collapse of the system when losses in one entity rippled across the system.

In addition, however, we assess a broader range of non-bank credit intermediation. This includes securitization, corporate bonds, and lending by non-bank institutions such as insurance companies, leasing companies, and government agencies. We do not use the pejorative term shadow banking for this broader set of activities. In defining non-bank credit intermediation, we focus on credit intermediation to the private sector only (households and non-financial corporations). For a sample of ten advanced economies on which we have compiled data, we find that non-bank sources have extended the majority of credit to the private sector in every year since 2003, totaling $31 trillion as of the second quarter of 2014.

Methodology for compiling data on non-bank credit

We compile a time series on non-bank credit intermediation for 2003–13 for ten advanced economies (Australia, Canada, France, Germany, Japan, the Netherlands, South Korea, Spain, the United Kingdom, and the United States) and China, together representing about 80 percent of private-sector debt in our database.

We start with the liability side of the unconsolidated national accounts balance sheets of each country to arrive at total credit provided to the household and non-financial corporate sectors. Total credit is defined as the outstanding stock of loans for households and the outstanding stock of loans plus the debt securities for non-financial corporations. Data on the loans and bonds of corporations are from the nations where they are "resident"—where the corporations are legally constituted and registered. The headquarters of corporate groups does not play any role in this case.[111] The residency of individual persons is determined by the households of which they are part. This means that all members of the same household have the same residence even though they may cross borders to work or spend time abroad.[112]

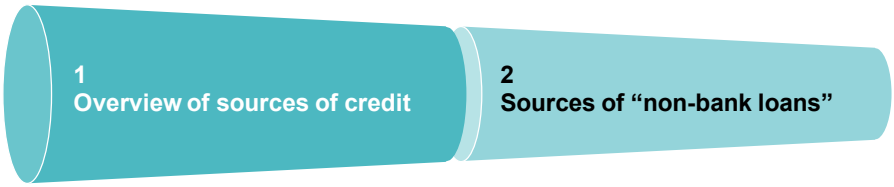
To identify sources of credit to the private sector, we use a two-step process (Exhibit A3). First we split liabilities of households and corporations into four major types of instruments: bank loans, securitizations, corporate bonds, and non-bank loans (the last calculated as a residual). In the second step, we further split non-bank loans into six subcategories (see below) using additional national accounts, publications by regulatory and government bodies, and data from organizations such as the OECD and SIFMA. The sources of non-bank loans include other financial intermediaries, governments, insurance companies and pension funds, foreign non-bank loans, and domestic corporate-to-corporate loans. Inter- and intra-corporate loans comprise both cross-border and domestic lending.

[111] This is consistent with the balance of payments definitions outlined by the IMF in the Balance of Payments and International Investment Position Manual, sixth edition, 2009 (BPM6). In the case of a branch office or production site that is not a subsidiary, national accounts consider this a quasi-corporation, and therefore it is also treated as resident in the country in which it is located.

[112] This is consistent with the balance of payments definitions outlined by the IMF (BPM6).

Exhibit A3

Two-step approach to review credit provision to the private sector



	1 Overview of sources of credit	2 Sources of "non-bank loans"
Description	Split private-sector credit (excluding financials) into: ▪ Bank loans[1] ▪ Corporate bonds ▪ Securitizations ▪ Non-bank loans[2]	Split non-bank loans from step 1 by source, e.g., ▪ Other financial intermediaries ▪ Government loans ▪ Insurance companies/ pension funds ▪ Foreign non-bank loans ▪ Domestic corporate to corporate loans
Rationale	Develops comprehensive figures of size of non-bank and bank credit provision globally. Allows analysis by country and over time	Enables deeper assessment of potential risks posed by shadow banking by understanding originating entities and their leverage, behavior, incentives, and systemic linkages

1 Includes some government banks (e.g., development, promotional, export financing).
2 Includes intracompany loans.

SOURCE: McKinsey Global Institute analysis

Definitions of instruments

Four types of instruments are measured in our analysis of private-sector credit provision: bank loans, corporate bonds, securitizations, and non-bank loans (Exhibit A4). The recent update of international accounting standards (SNA-2008/ESA-2010) makes financing relationships between institutional sectors more transparent.[113] The standard now requires breakdowns of the counterparty sector to which a loan is owed. In six of the ten economies (excluding China) in our sample of countries, this information was already part of the national accounts (in "from-whom-to-whom" tables). For the other four countries (Canada, France, the United Kingdom, and the United States), additional data had to be compiled.

Bank loans were either directly identified in national accounts (in eight cases) or obtained from regulatory reporting (in two cases).[114] To avoid double counting, securitization figures that are presented separately have been eliminated from bank balance sheets either in full (for example, if most of the securitized loans are held in loan pools to be pledged as collateral for covered bonds) or partially (in the case of self-securitizations). The treatment varies depending on common practice in each country. In addition, for countries with a large share of external financing, loans granted by non-resident banks have been reallocated from the residual of the first order breakdown (non-bank loans) back into bank loans (see following section under foreign loans for further details).

[113] Nine countries in our sample have already implemented SNA-2008/ESA-2010. Japan will follow in 2015–16.

[114] In Europe, "banks" are described as "monetary financial institutions," which include money market funds. Since money market funds usually hold only debt securities, this should not affect reconciliations of loans.

For securitizations, we used data from national accounts and regulatory statistics where they were available in sufficient detail, and we relied on SIFMA data in other cases. Presented figures are restricted to cases where the direct underlying asset is a loan. This includes residential and commercial mortgage-backed securities (RMBS/ CMBS) as well as most forms of asset-backed securities (ABS) and SME loan securitizations. We do not include re-securitizations such as collateralized debt obligations, collateralized loan obligations, or collateralized mortgage obligations to avoid double counting the same underlying.

Our data on corporate bonds follow the official definition of debt securities (under SNA-2008). Debt securities are negotiable instruments serving as evidence of a debt. They include, among other things, bills, bonds, negotiable certificates of deposit, commercial paper, and debentures.

Non-bank loans are calculated as the remaining residual after subtracting bank loans, securitizations, and bonds from the total debt of the sector. We then further determine the source of non-bank loans as explained below.

Exhibit A4

Definition of instruments used in breakdown of private-sector credit NOT EXHAUSTIVE

Instrument	Includes	Excludes
Bank loans	▪ Loans held on balance sheet of banks	▪ Securitizations
Corporate bonds	▪ Short- and long-term debt securities	▪ Financial derivatives
Securitizations	▪ Residential and commercial mortgage-backed securities ▪ Asset-backed securities/SME loans	▪ Collateralized debt obligations (including collateralized loan obligations) ▪ Collateralized mortgage obligations
Non-bank loans	▪ Direct loans held on balance sheet by insurers, finance companies, etc.	▪ All accounts payable ▪ Pension liabilities

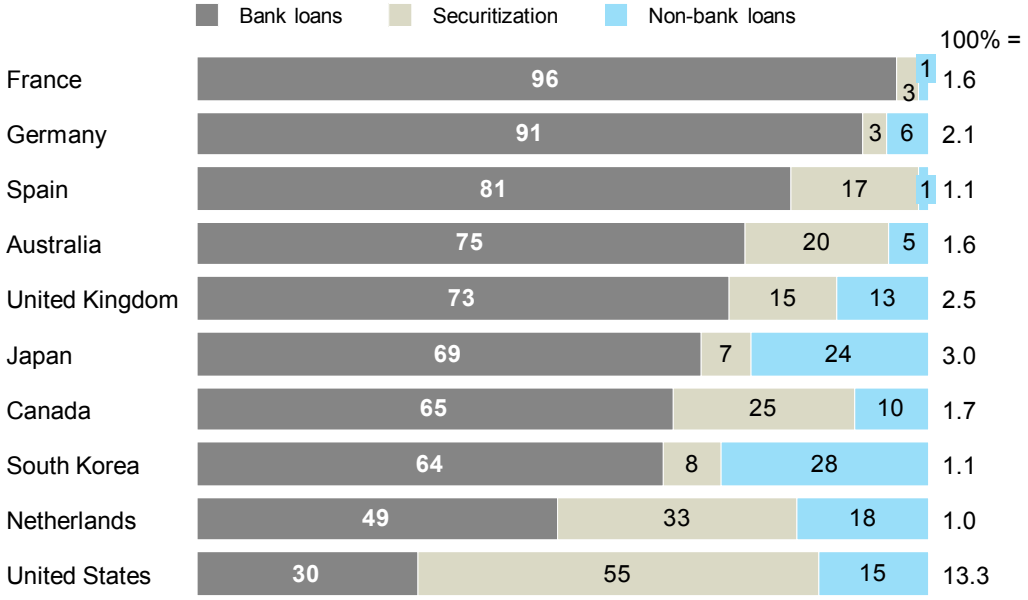
SOURCE: McKinsey Global Institute analysis

The mix of sources of credit to the private sector varies considerably across countries. Exhibits A5 and A6 show these separately for households and corporations.

Exhibit A5

For households, bank loans still dominate credit provision outside the United States and the Netherlands

Household sector debt by source, 2Q14
%; $ trillion


Bank loans
Securitization
Non-bank loans
100% =
France 96 3 1 1.6
Germany 91 3 6 2.1
Spain 81 17 1 1.1
Australia 75 20 5 1.6
United Kingdom 73 15 13 2.5
Japan 69 7 24 3.0
Canada 65 25 10 1.7
South Korea 64 8 28 1.1
Netherlands 49 33 18 1.0
United States 30 55 15 13.3

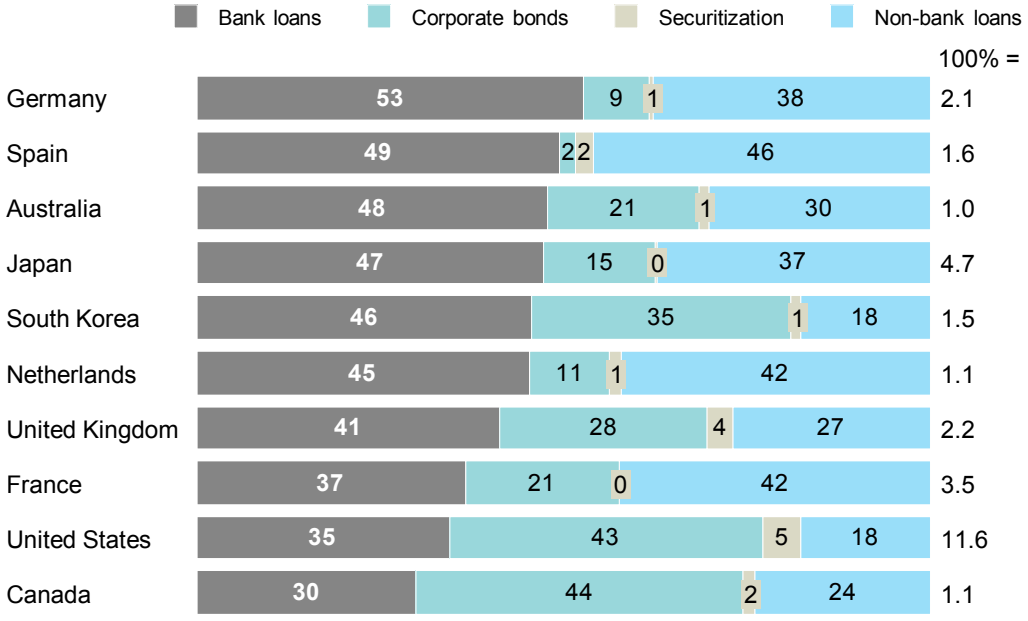
NOTE: Numbers may not sum due to rounding.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; for some individual data points, additional country-specific data sources; McKinsey Global Institute analysis

Exhibit A6

For non-financial corporations, bank lending is the majority of credit only in Germany

Non-financial corporate debt by source, 2Q14
%; $ trillion


Bank loans
Corporate bonds
Securitization
Non-bank loans
100% =
Germany 53 9 1 38 2.1
Spain 49 2 2 46 1.6
Australia 48 21 1 30 1.0
Japan 47 15 0 37 4.7
South Korea 46 35 1 18 1.5
Netherlands 45 11 1 42 1.1
United Kingdom 41 28 4 27 2.2
France 37 21 0 42 3.5
United States 35 43 5 18 11.6
Canada 30 44 2 24 1.1

NOTE: Numbers may not sum due to rounding.

SOURCE: National central banks, statistics offices, and regulators; BIS; ECB; SIFMA; for some individual data points, additional country-specific data sources; McKinsey Global Institute analysis

Determining the source of non-bank loans

In many countries, non-bank loans are a significant portion of credit to the private sector. To understand the potential risks and benefits of this type of credit, we further break down the figures into six components:

- **Other financial intermediaries.** Under SNA-2008, "other financial intermediaries" consist of securitization corporations, securities and derivative dealers, lending corporations, central clearing counterparties, and other specialized financial corporations. For our analysis, securitization activities have been excluded.[115] More detailed subsector classifications (as described in SNA-2008) are still under development and are not yet available for most countries. For the United States, however, we compiled a more detailed view, which shows that the largest "other financial intermediaries" are finance companies (auto and consumer leasing and finance firms), securities broker-dealers, and domestic funding corporations of non-financial corporations (Exhibit A7).

- **Governments.** This includes loans made directly by the government to households (for example, student loans or low-income housing loans) or to enterprises (loans to public corporations, for example). We exclude lending by development or promotional banks if these institutions have been classified as monetary financial institutions, which are included under bank lending. These would include, for example, Kreditanstalt für Wiederaufbau (KfW) in Germany, Instituto de Crédito Oficial (ICO) in Spain, and Caisse des Dépôts et Consignations (CDC) in France.[116]

- **Insurance companies and pension funds.** This includes primarily commercial mortgage loans made by insurance companies—often life insurance companies with long-term claims—but not fixed-income securities held in insurance investment portfolios.

- **Domestic corporate-to-corporate loans.** Figures presented under this category represent either intra-sector relationships (loans from one non-financial corporation to another) if those data are available, or the difference between consolidated and unconsolidated sector accounts as provided by national statistics offices, Eurostat, or the OECD. Ideally, we would exclude intra-corporate loans of companies; however, in some countries, data are reported only in an unconsolidated format for companies.

- **Foreign non-bank loans.** Most of these are international loans made from a parent company to a subsidiary or loans made to corporations by special holding vehicles established specifically for this purpose. Such funding vehicles are often, but not exclusively, established in the Netherlands. Foreign loans had a high share within the original residual of our instrument split (what is now classified as non-bank loans). Therefore, we estimated bank loans from non-resident banks—cross-border bank loans—in the countries where these foreign loans were a significant part of the original residual. Subsequently, this share has been reclassified as bank loans and removed from the non-bank loan figures presented in Chapter 3. The estimates are based on national sources and data from the Bank of International Settlements and the European Central Bank. The Bank of International Settlements has made establishing more transparency in international lending a priority and plans to publish more precise international lending data in 2015. This will significantly facilitate future analysis in this area.

[115] Changes in accounting standards now require banks to keep securitized loans on balance sheets in most cases, resulting in a significant drop of assets held by securitization vehicles in most countries.

[116] In Japan, public financial institutions are officially classified as OFIs in the national accounts.

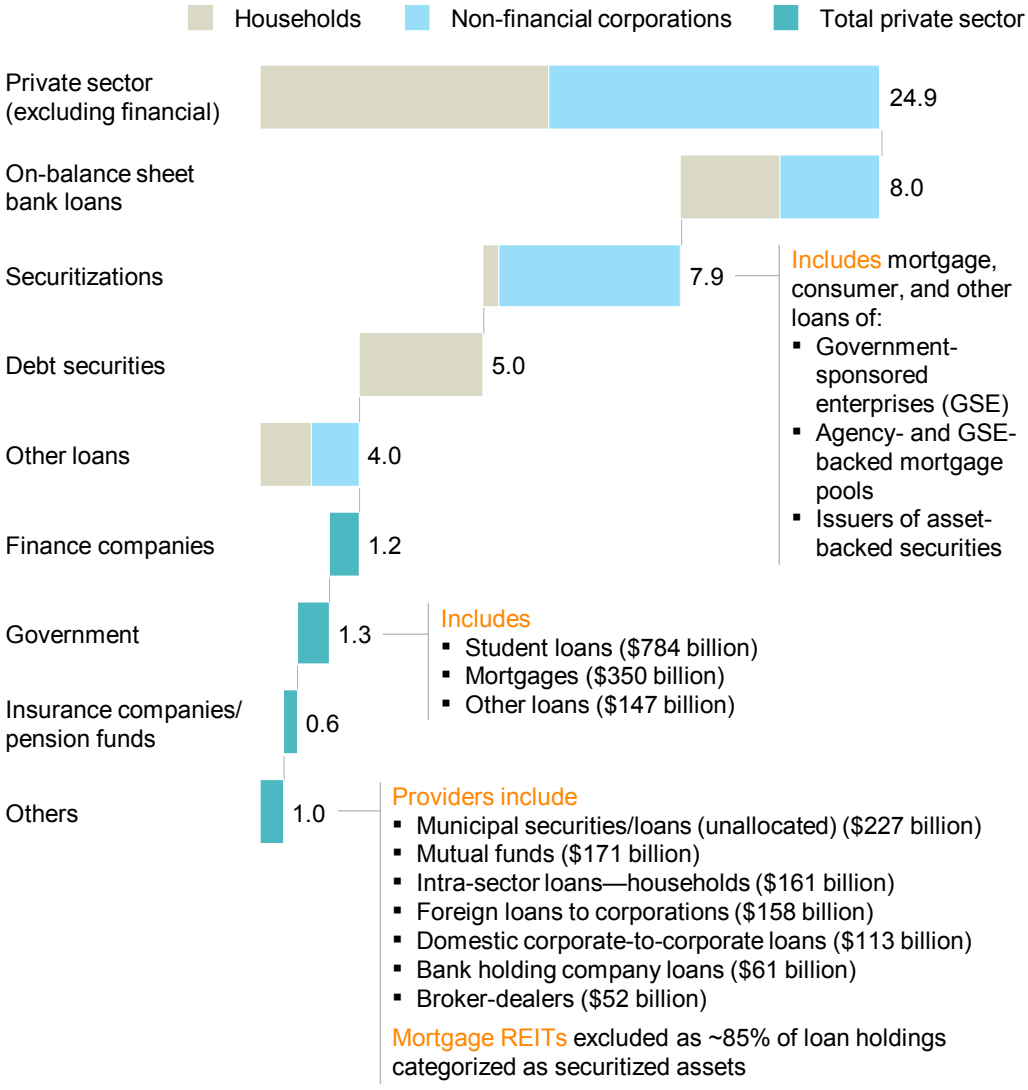
- **Other.** "Other" is a residual category that includes either country-specific sources of credit or any non-allocated loans due to data gaps. At 3 percent of total private-sector credit, this residual is relatively small but should certainly be monitored.

It is worth noting that there are many ongoing efforts to develop more precise data on non-bank lending. This is a direct consequence of the introduction of the new accounting schemes as well as of efforts to close existing data gaps (such as the G20 Data Gaps Initiative). Therefore, we would expect deeper breakdowns of individual sectors in the future, which will make analysis of non-bank lending more precise.

Exhibit A7

In the United States, non-bank loans are provided by finance companies, insurers, and the government

US private-sector debt by source of credit, 2Q14
$ trillion



NOTE: Numbers may not sum due to rounding.

SOURCE: US Federal Reserve Flow of Funds; FDIC; SIFMA; McKinsey Global Institute analysis

3. Methodology for compiling time series of debt in China

Compiling accurate debt numbers for China's government, household, non-financial corporate, and financial sectors is complicated by the quality of reported data, the close interconnections between the government and the corporate sector, and the multiple sources of credit that are not fully captured in the official statistics. We have attempted to create a comprehensive view of debt in China, while eliminating double counting of debt between non-financial corporations and the government, especially in the case of local government borrowing. Otherwise we follow the detailed methodology outlined above for compiling our debt database.

Exhibit A8 summarizes the components of debt for each sector, as well as adjustments made to the figures to eliminate double counting.

Exhibit A8

Components of debt in China

Sector	Includes	Adjustments
Government	▪ Central government debt ▪ Local government debt ▪ Debt of local government financing vehicles (LGFV)	▪ Adopted central government debt and local government debt from National Audit office, including LGFV bonds, trust loans, bank loans, and other financing loans ▪ Deducted central government's debt transfer to avoid double counting ▪ Deducted account payables on local government debt to align with MGI debt definition
Households	▪ Bank loans to households (including mortgage, credit card advances, auto loans, and other personal loans) ▪ Operating loans from financing companies regulated by People's Bank of China (PBOC) ▪ Informal loans	▪ Informal loans for households are equal to 30% of formal bank loans (based on academic studies)
Non-financial corporations	▪ Bank loans to corporate, excluding LGFV loans ▪ Entrusted loans ▪ Trust loans ▪ Credit from banks' wealth management products ▪ Loans from PBOC-regulated financing companies ▪ Informal loans	▪ Deducted LGFV loans from bank loans to corporate ▪ Deducted trust loans and corporate bonds for LGFV to avoid double counting
Financial institutions	▪ Debt of commercial banks ▪ Debt of other financial institutions (such as insurance companies)	▪ Excludes interbank loans

SOURCE: McKinsey Global Institute analysis

Eliminating double counting

To reflect the true picture of the use of debt, we deducted the value of bank loans, trust loans, and corporate bonds to local government financing vehicles from non-financial corporate debt, since government debt is already included in the government sector.

Within government debt, central government bond transfers are deducted from central government debt to prevent double counting of government debt. To align with MGI debt definitions, we also deducted accounts payable and delayed payments in local government debt.

Sources of data and data series

- **People's Bank of China statistics.** We use the PBOC data on loans to households (from both banks and PBOC-regulated financing companies), non-financial corporations, and financial institutions from 2000 to June 2014. The data offer a granular view of the composition of debt. For households, this includes mortgages, auto loans, credit card advances and other personal loans, and operating loans for household businesses. For corporate loans, it includes corporate loans by sectors (such as property, construction, wholesale and retail, and manufacturing).

- **National Audit Report.** Wherever possible, we use data series provided by the National Audit Report, which are generally considered to be more up to date and reliable by experts in China. We use the Audit Report series for 2010 to 2013; we estimated the size of central and local government debt before using the growth rates of government debt reported by China's National Bureau of Statistics.

- **CEIC data on shadow banking.** CEIC databases provide flow numbers for shadow banking volumes in China: trust loans, entrusted loans, and bank wealth management products. To estimate the outstanding stock of loans, we collected data about wealth management products, trust loans, and entrusted loans from China's social financing statistics from 2002 to June 2014.

- **Bank for International Settlements.** BIS provides statistics on various elements of the global financial system for international comparison. We use BIS corporate bond data series from 2000 to June 2014 for China's corporate bonds.

- **China International Capital Corporation (CICC) data series on informal loans.** CICC compiles an annual data series on informal lending to both households and non-financial corporations in China, which were estimated at $660 billion, or 7 percent of GDP, in 2013. Informal loans include Internet peer-to-peer lending, microlending, pawnshop loans, and other forms of informal lending. We use the CICC data to supplement our data series and present a more comprehensive picture of debt.

Comparison with other estimates

The McKinsey Global Institute's estimates of China's debt—217 percent of GDP in June 2014, or 282 percent if we include financial-sector debt—are in line with figures in the Geneva Report, Merrill Lynch, Standard Chartered, Goldman Sachs, and other analyses (Exhibit A9).

Key differences with other estimates are primarily due to different definitions and compositions of debt, as follows:

- **Geneva Report.** The Geneva Report uses a different estimate of shadow banking and excludes informal loans in both household debt and non-financial corporate debt.[117] It also has a different estimate of financial debt. These are the key factors that explain the difference between our estimate of debt to GDP and those of the Geneva Report, which estimates China's debt-to-GDP ratio at 210 percent.

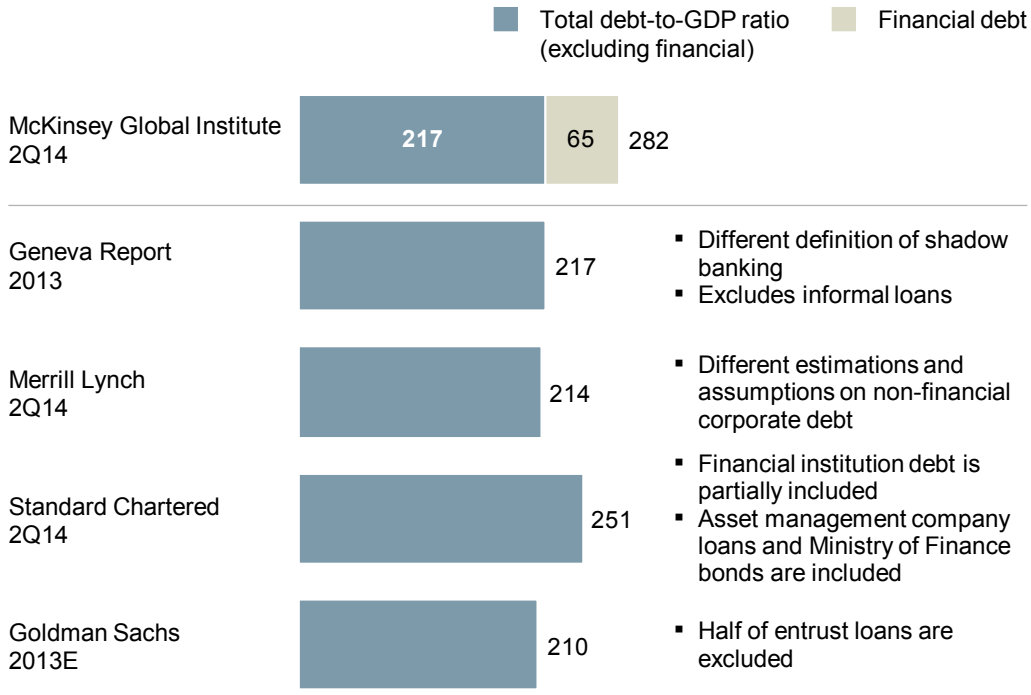
- **Merrill Lynch.** The key differences between Merrill Lynch's estimate of China's debt-to-GDP ratio and MGI's involve Merrill Lynch's estimate and assumptions about non-financial debt (particularly shadow banking and government debt) and the exclusion of financial-sector debt.

[117] Luigi Buttiglione et al., "Deleveraging? What deleveraging?" *Geneva Reports on the World Economy*, issue 16, September 2014.

- **Standard Chartered.** Under its definitions, financial institution debt is partially included, as are loans made by asset management companies and Ministry of Finance bonds.
- **Goldman Sachs.** Financial institution debt is excluded from this definition. In addition, Goldman Sachs excludes half of entrusted loans, which it believes would be double counting.

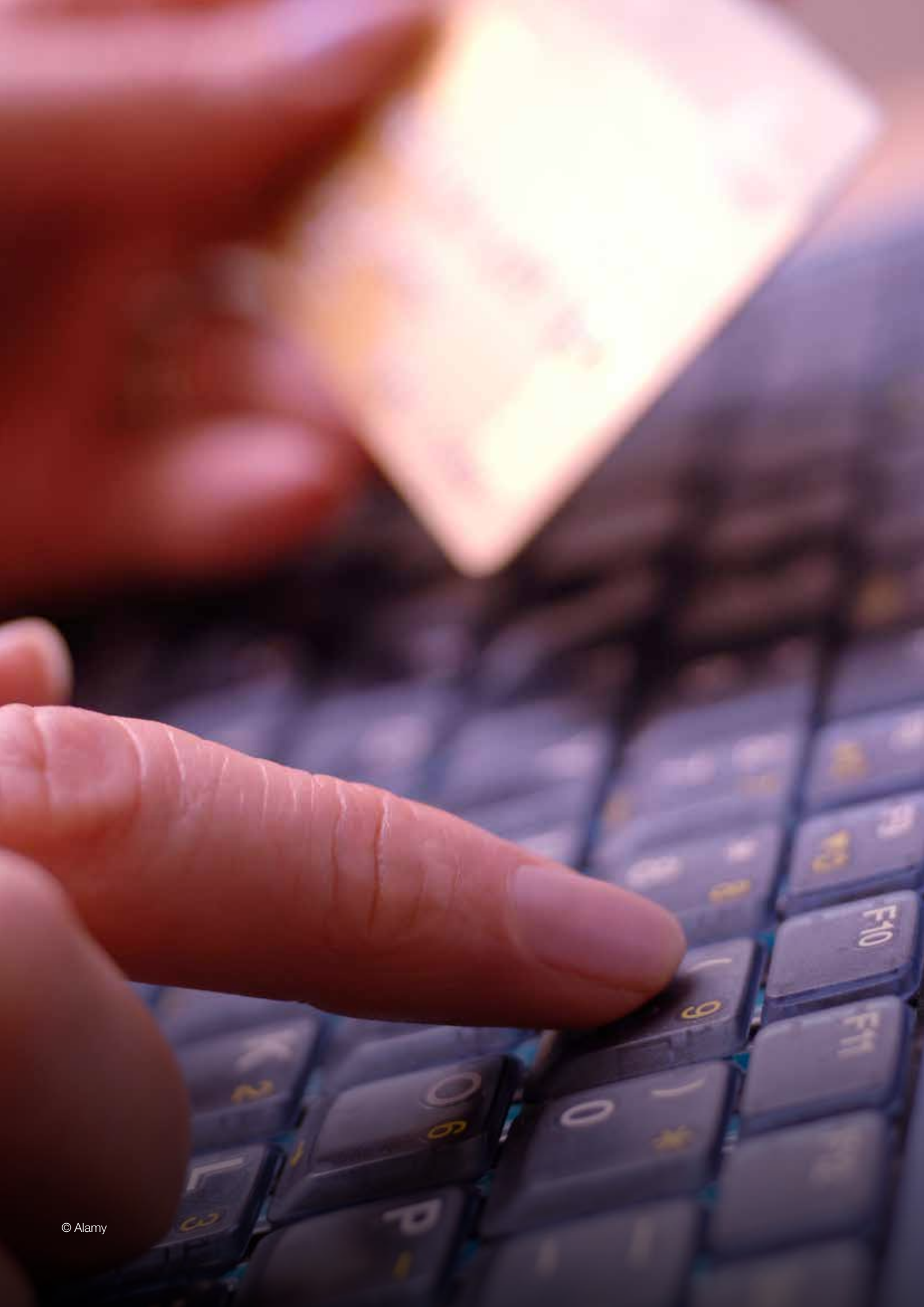
Exhibit A9

Comparison of data on China's debt from different sources



SOURCE: McKinsey Global Institute analysis

© Getty Images



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